

Supporting Information

Pd(0)-Catalyzed Cross-Coupling of Allyl Halides with α -Diazocarbonyl Compounds or *N*-Mesitylhydrazones: Synthesis of 1,3-Diene Compounds

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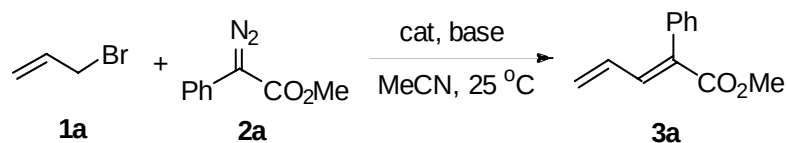
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[‡]*College of Chemistry and Chemical Engineering, Inner Mongolia University, Hohhot 010021, China*

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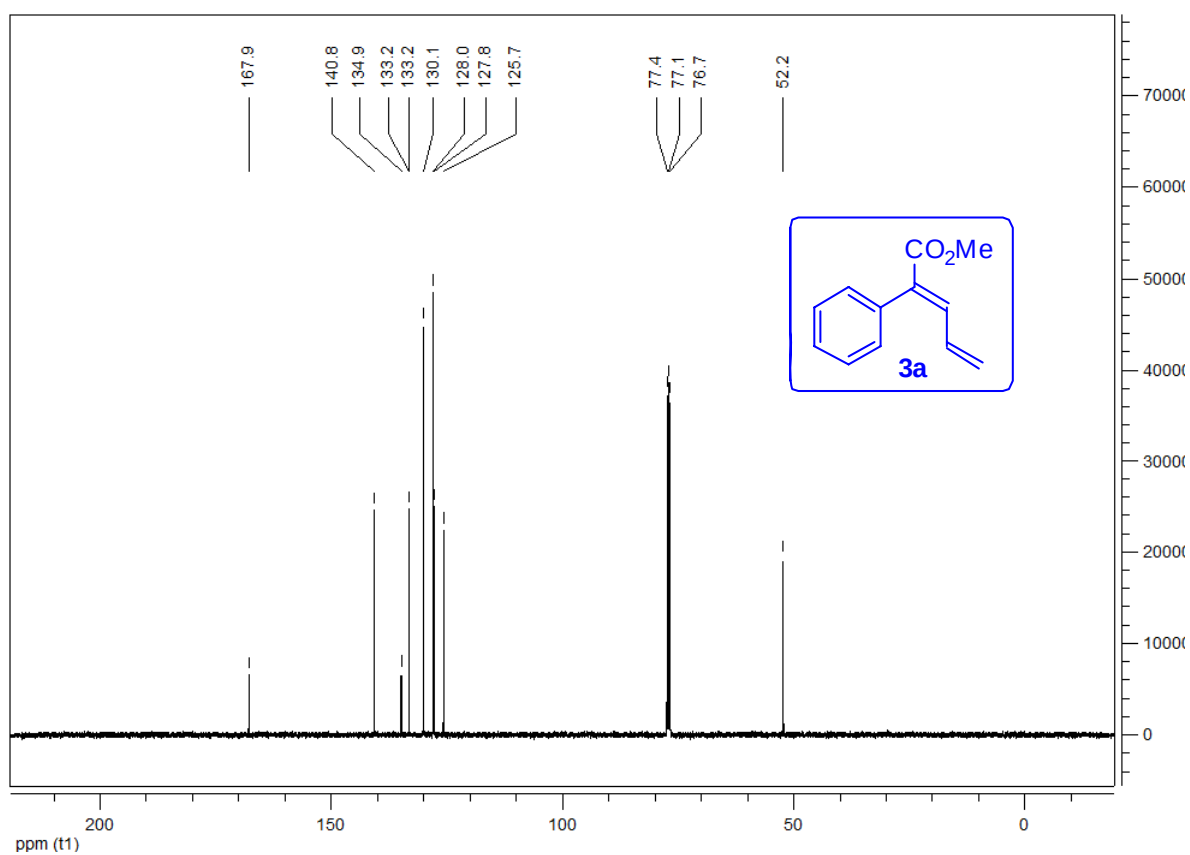
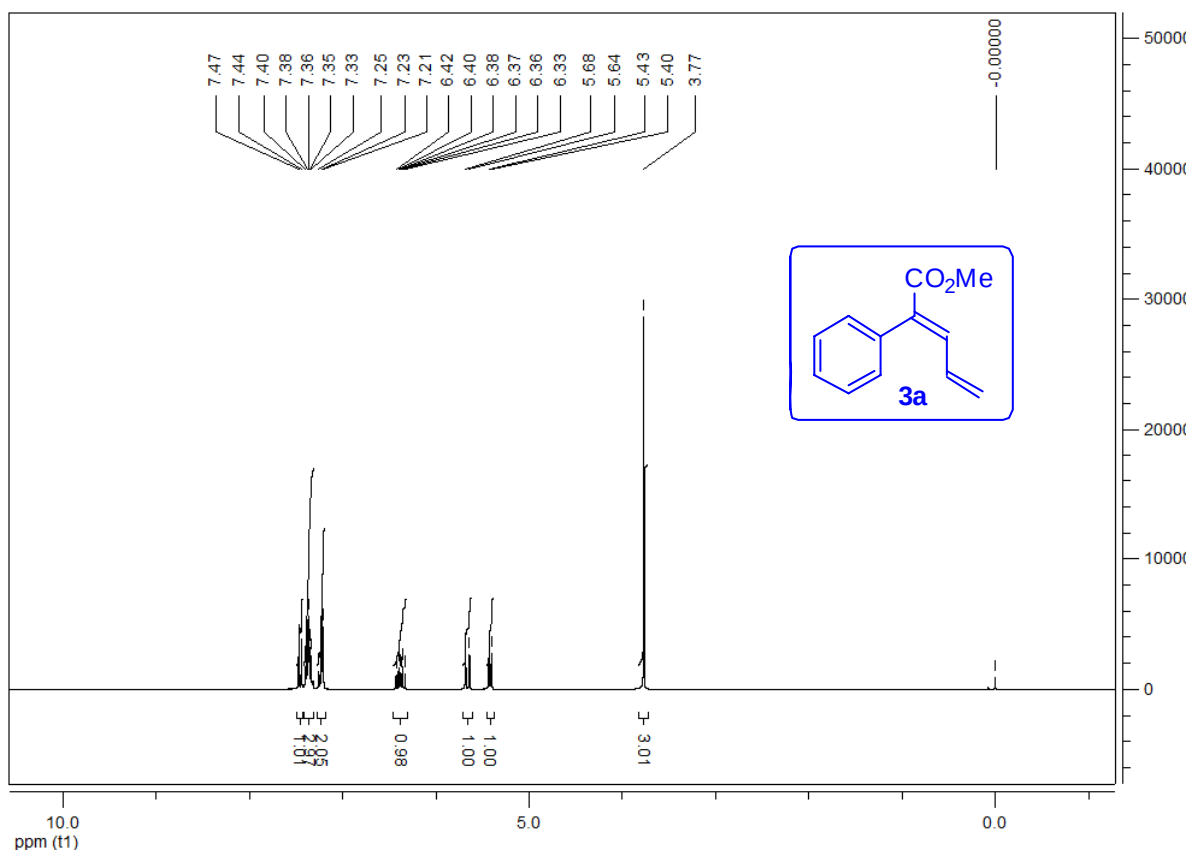
Table S1. Optimization for Pd-catalyzed reaction of 1a and 2a	S2
¹ H and ¹³ C NMR for 3a-h	S3-S16
¹ H and ¹³ C NMR for 5a-k	S17-S27
¹ H and ¹³ C NMR for 6a-q	S28-S44
¹ H and ¹³ C NMR for 7a-u	S45-S65

Table S1. Transition metal-catalyzed reaction of allyl bromide with methyl phenyldiazoacetate **2a**.^a

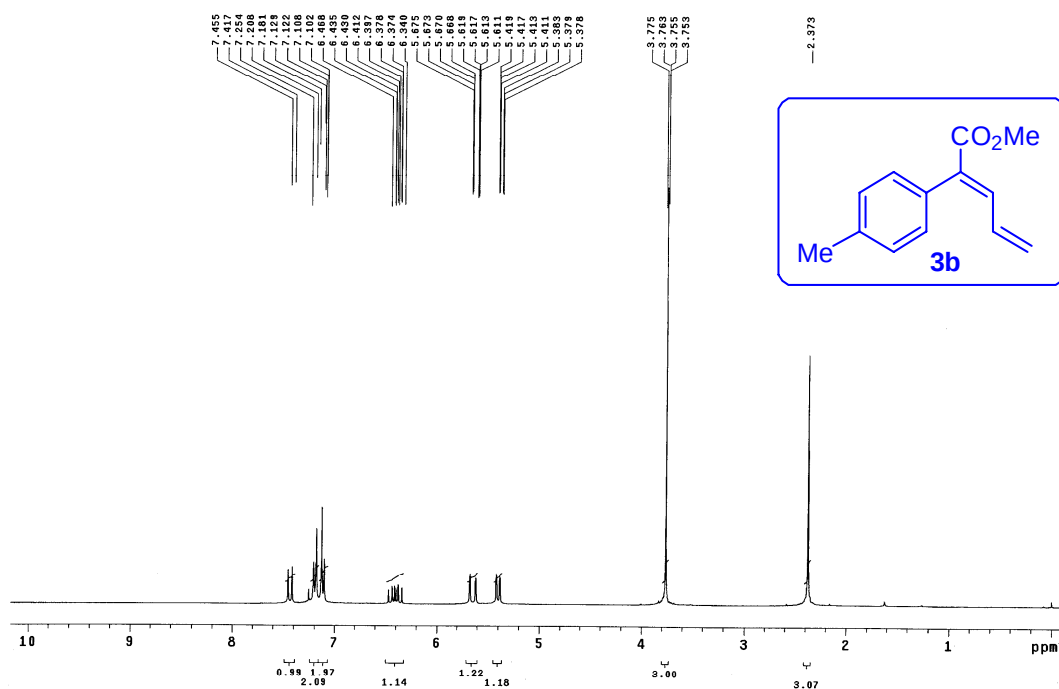


entry	cat. (mol%)	base	time (h)	yield (%) ^b
1	Pd(PPh ₃) ₄ (5)	Et ₃ N	12	0 (38) ^c
2	Pd ₂ (dba) ₃ (5)	Et ₃ N	24	45
3	PdCl ₂ (PPh ₃) ₂ (5)	Et ₃ N	24	0 (54) ^c
4	PdCl ₂ (5)	Et ₃ N	19	32
5	Pd(PhCN) ₂ Cl ₂ (5)	Et ₃ N	20	55
6	Pd(OAc) ₂ (5)	Et ₃ N	12	77
7	Rh ₂ (OAc) ₄ (0.5)	Et ₃ N	11	0 ^d
8	CuOTf (10)	Et ₃ N	24	0 ^d
9	CuI (10)	Et ₃ N	24	0 ^d
10	None	Et ₃ N	24	N.R. ^e
11	Pd(OAc) ₂ (5)	K ₂ CO ₃	12	61
12	Pd(OAc) ₂ (5)	Cs ₂ CO ₃	1	48 ^f
13	Pd(OAc) ₂ (5)	KOAc	9	55
14	Pd(OAc) ₂ (5)	DBU	24	0
15	Pd(OAc) ₂ (5)	None	24	N.R. ^e

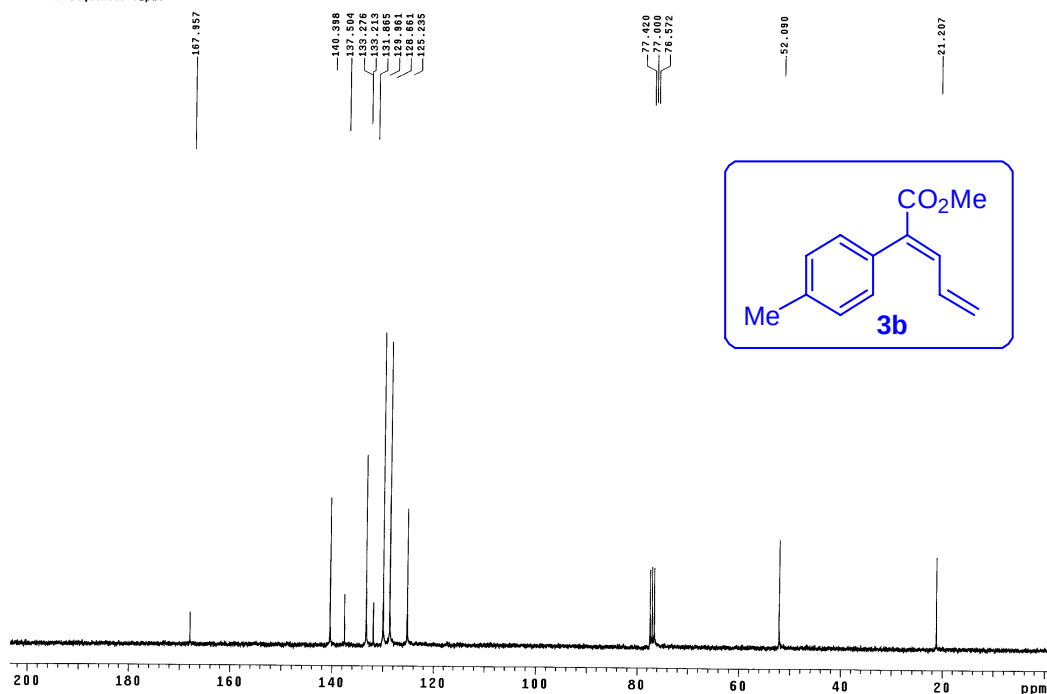
^a Reactions were carried out with 0.3 mmol of allyl bromide, 0.42 mmol of **1a**, and 0.9 mmol of Et₃N. ^b Yield of isolated product after chromatography. ^c The reaction was run at 50 °C. ^d The reaction gave complex mixture. ^e N.R.: No reaction, starting materials were recovered. ^f Starting materials disappeared after 1 h.



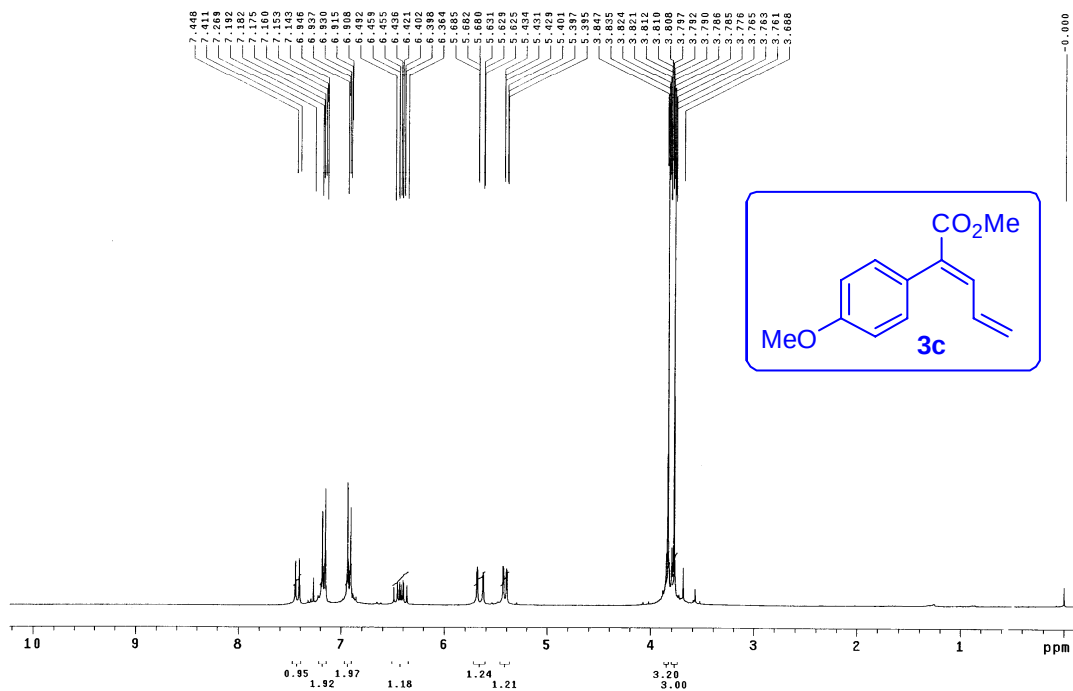
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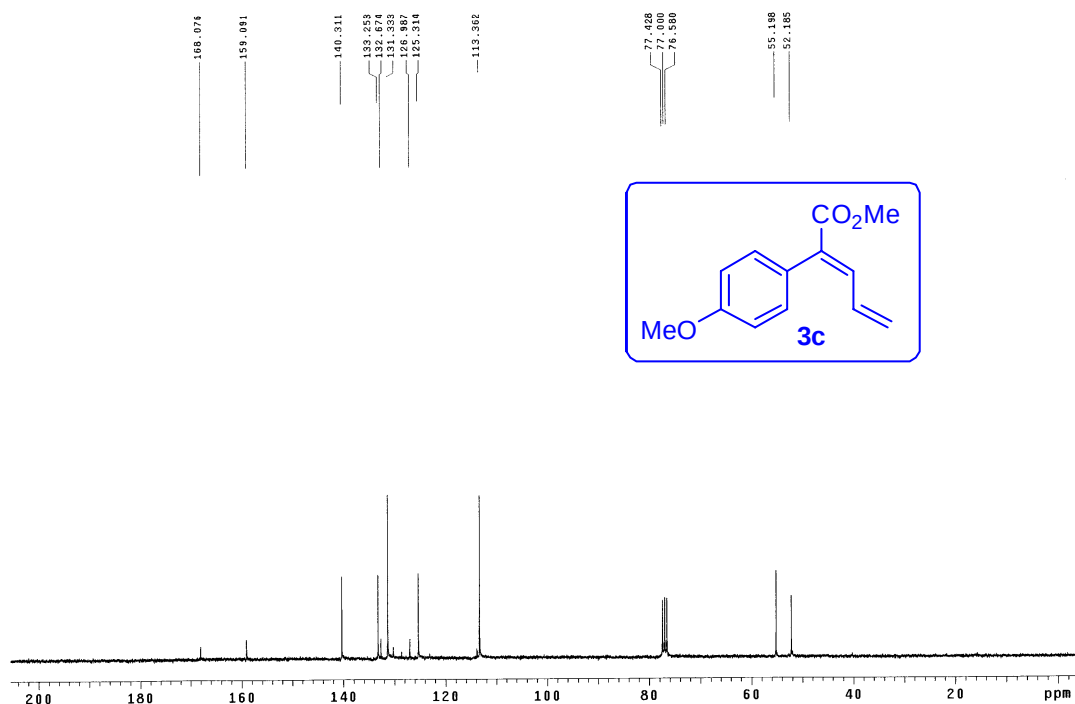
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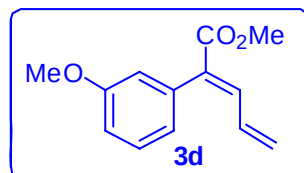
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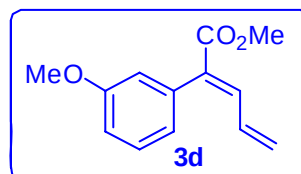
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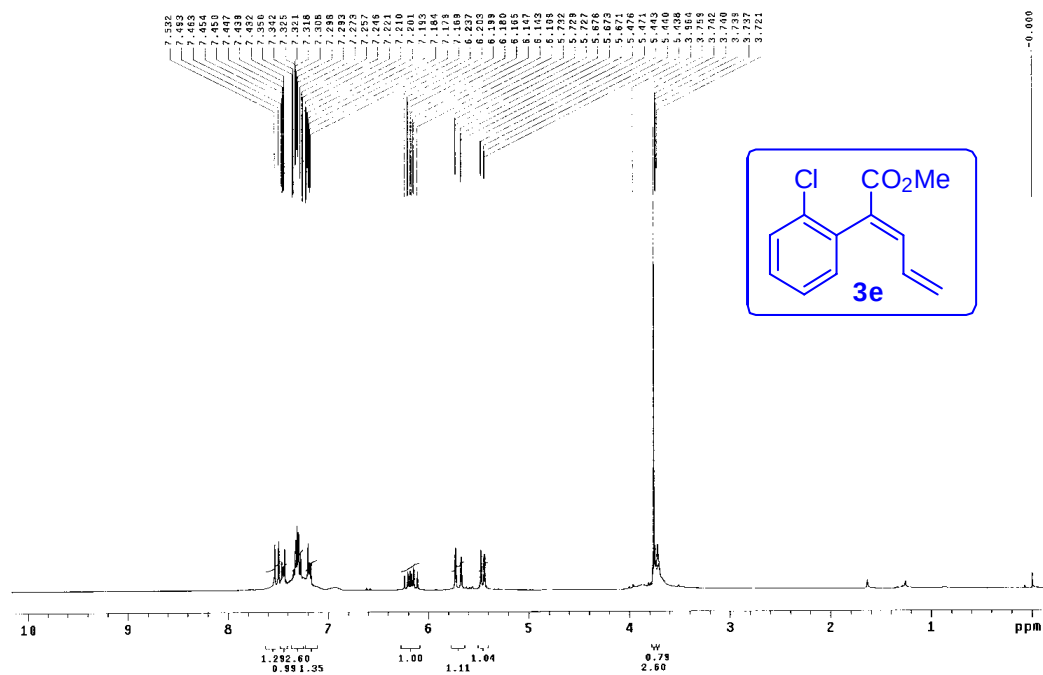
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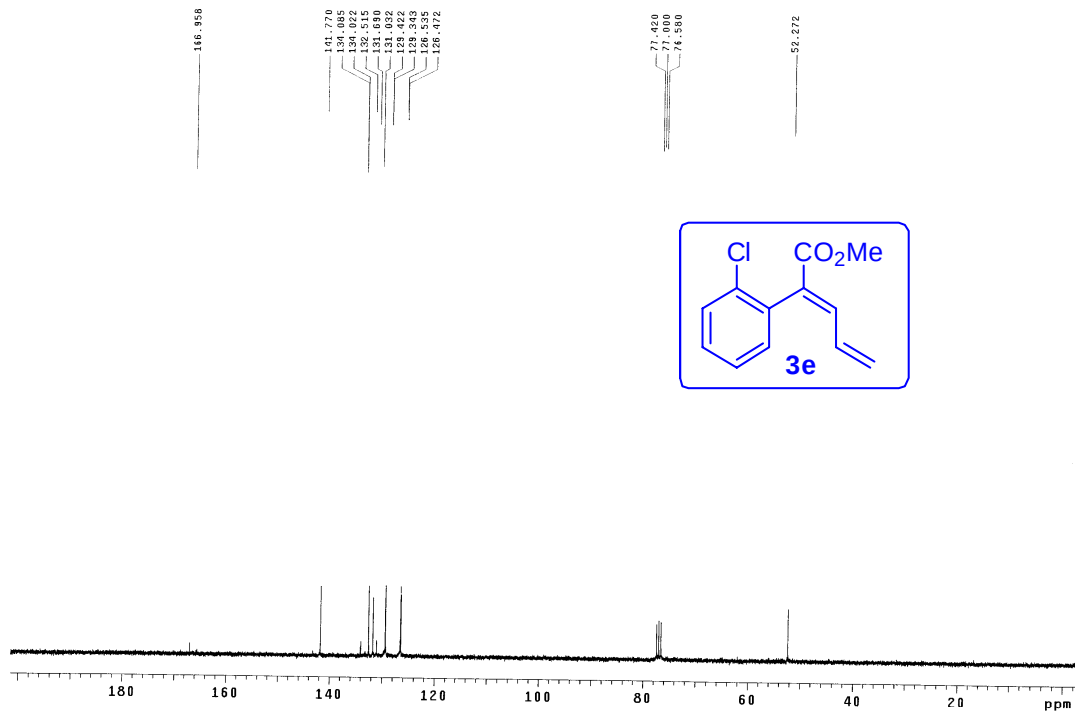
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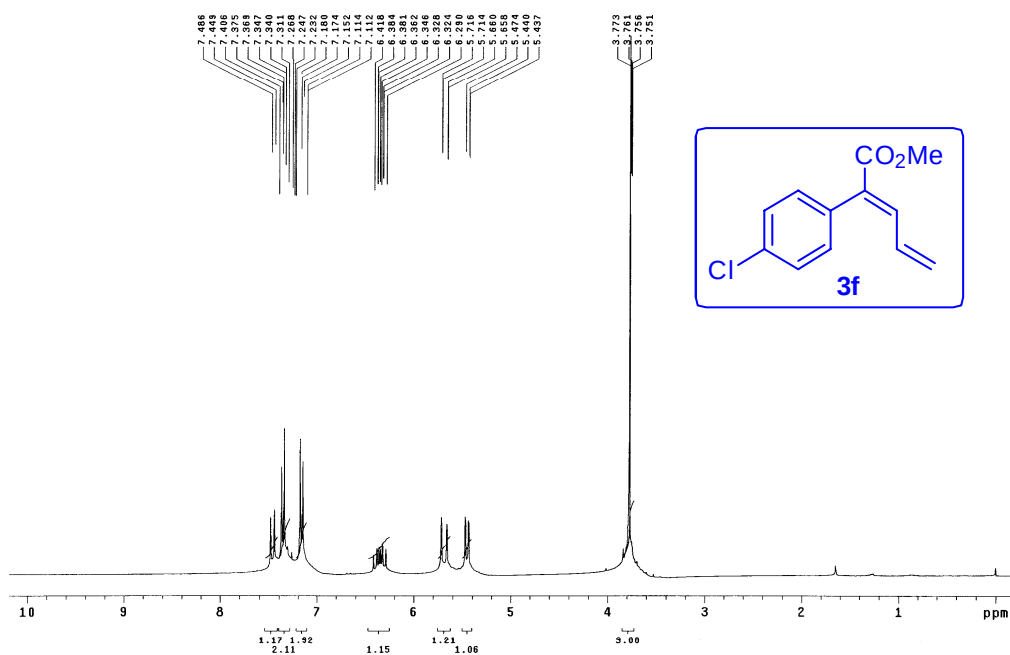
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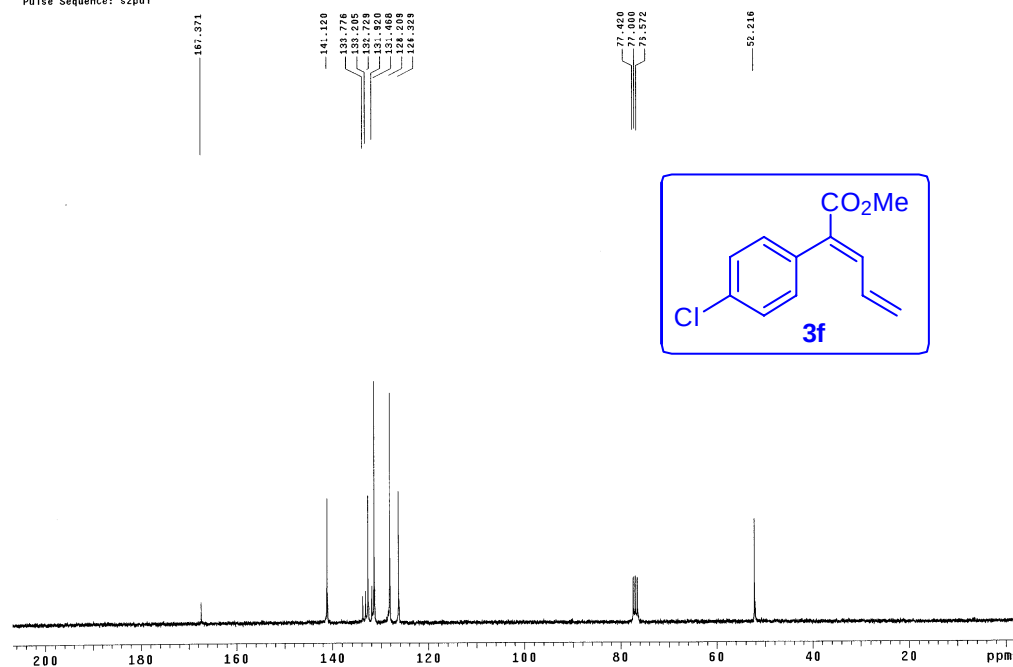
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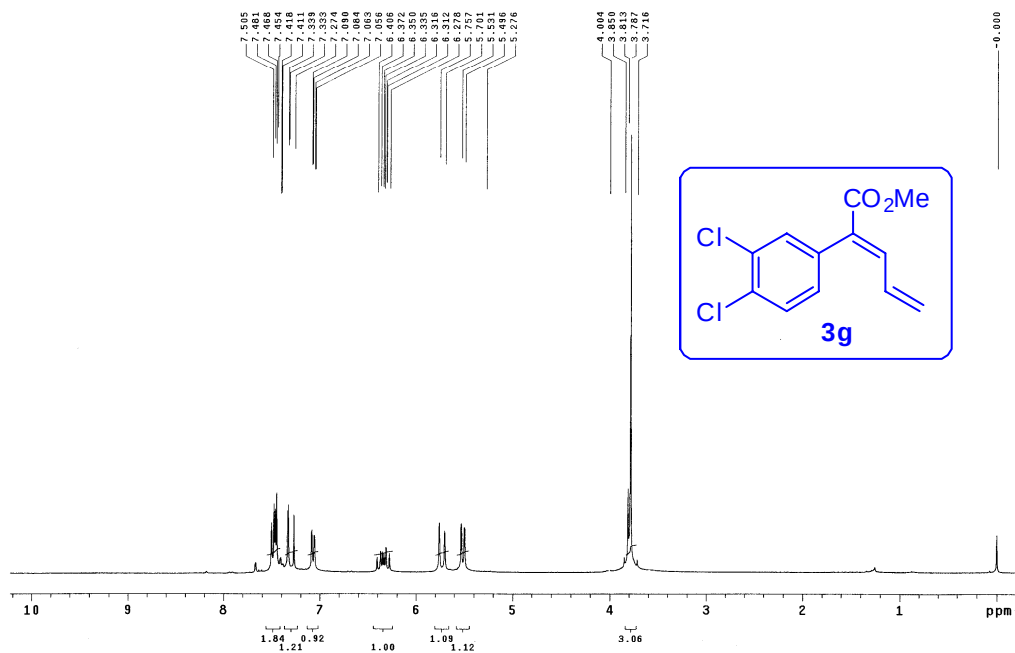
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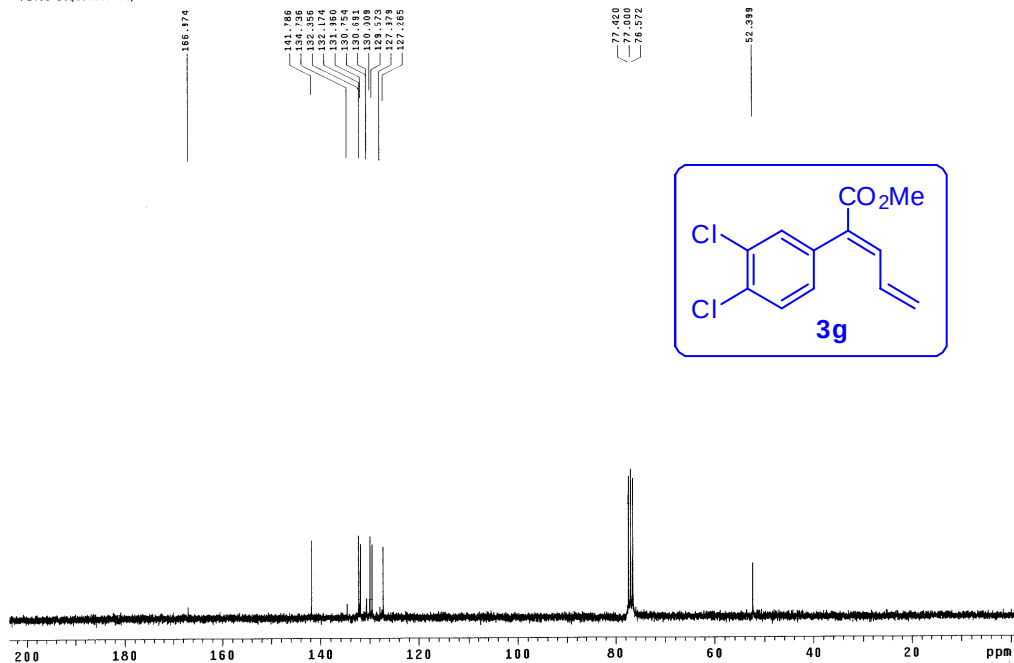
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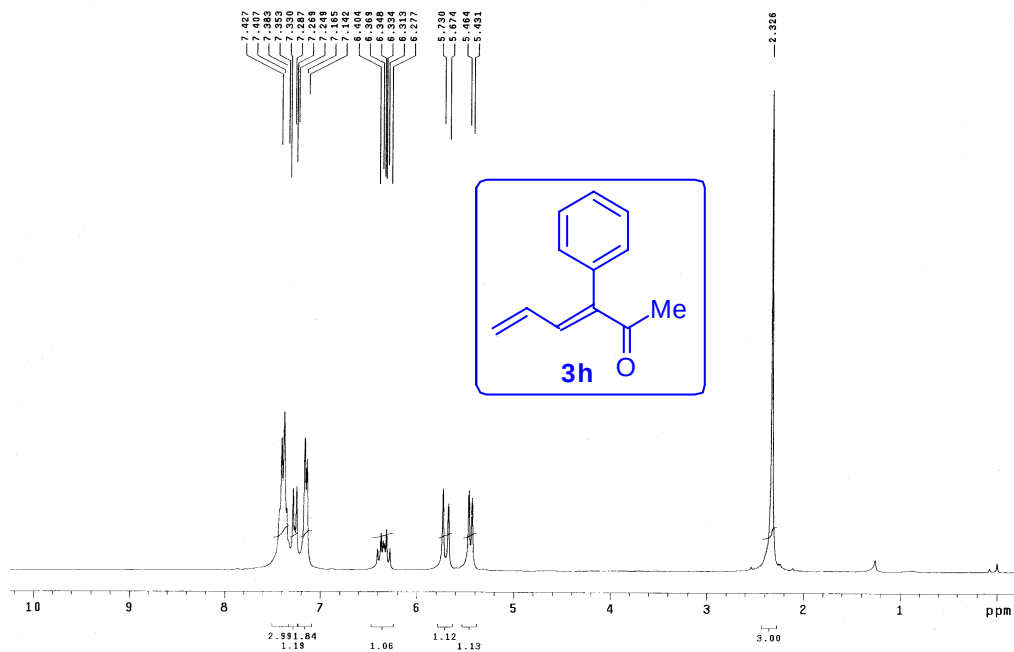


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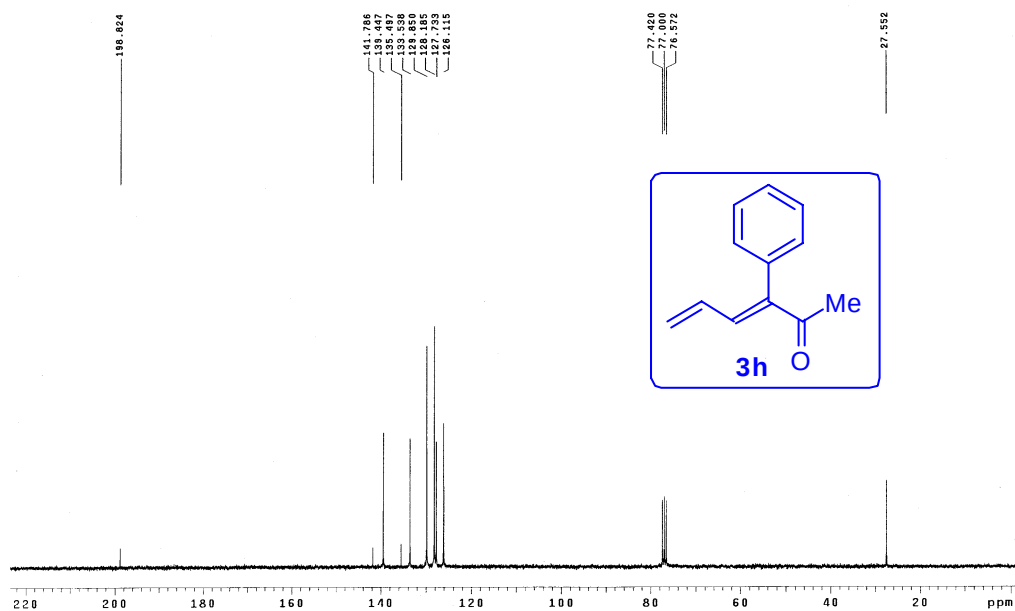
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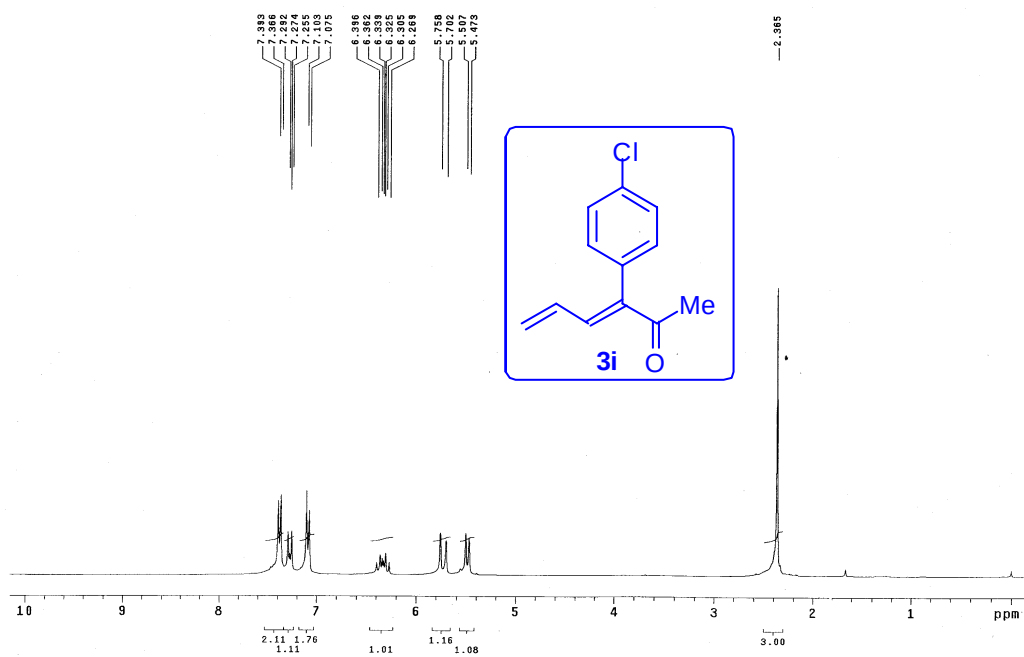
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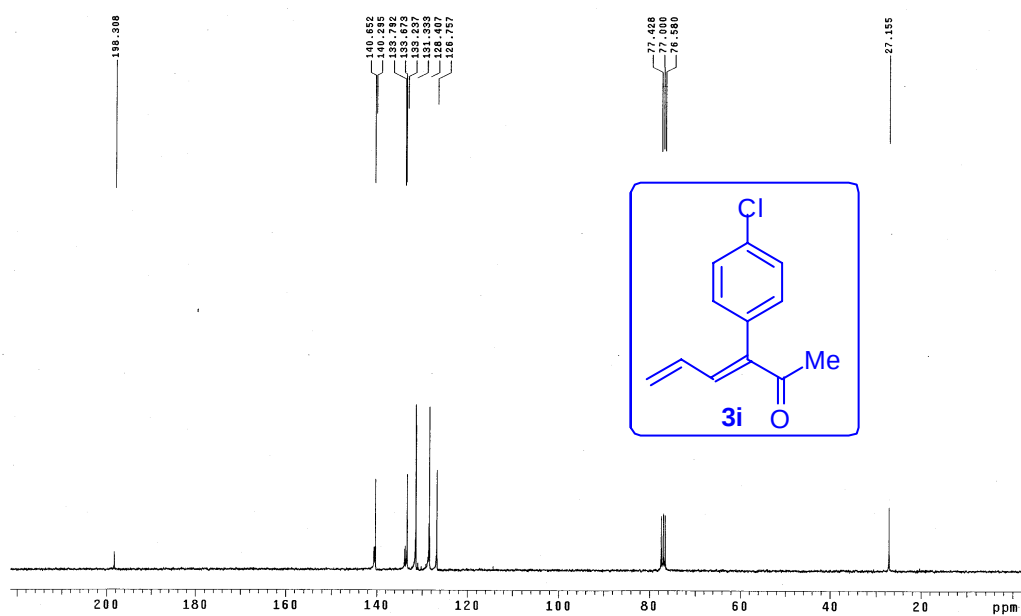
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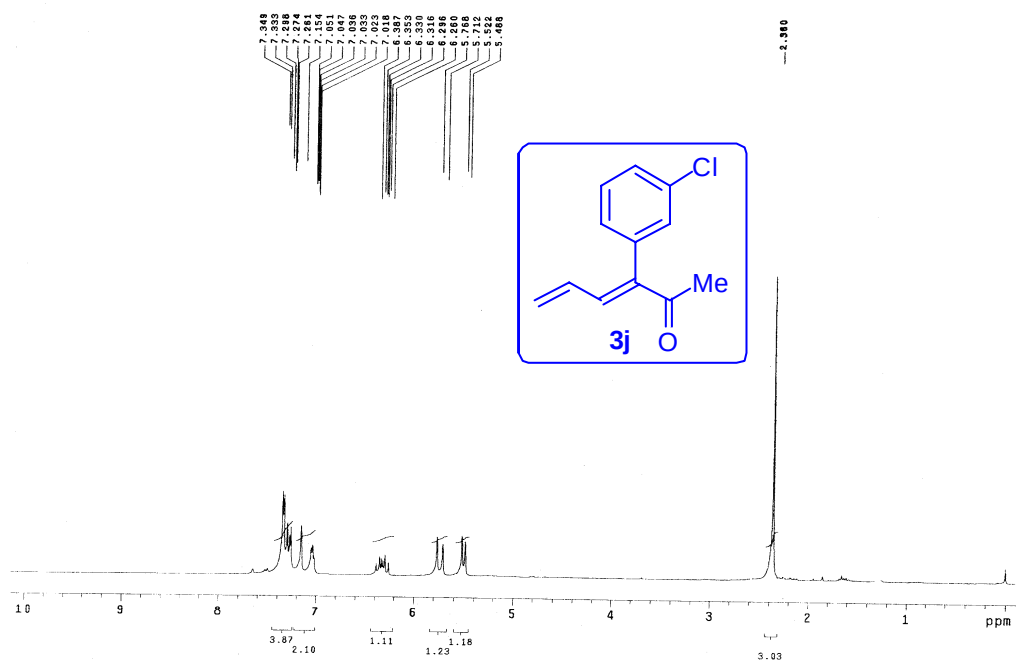
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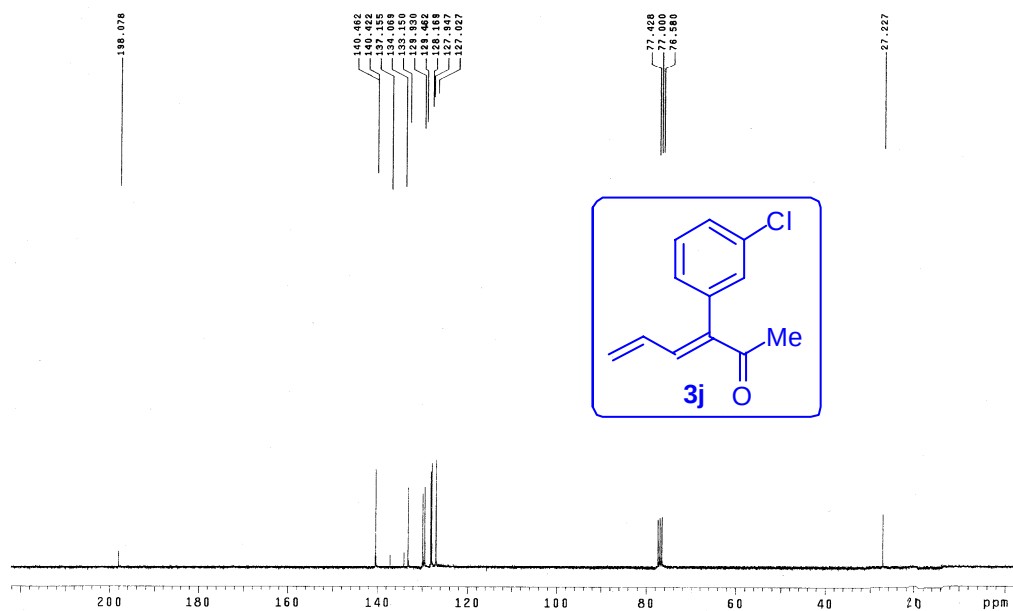
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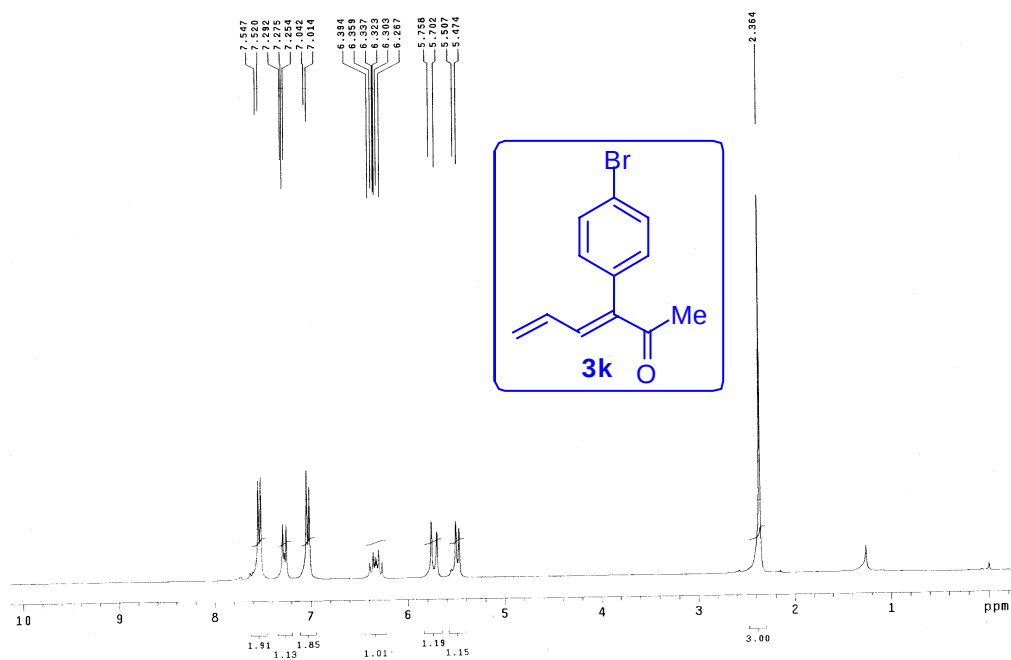
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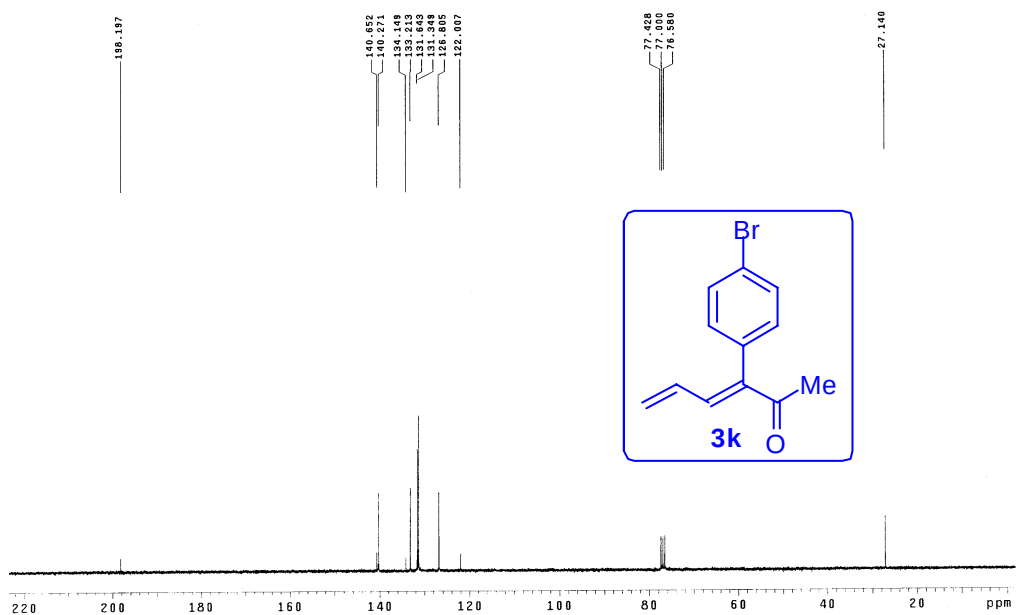
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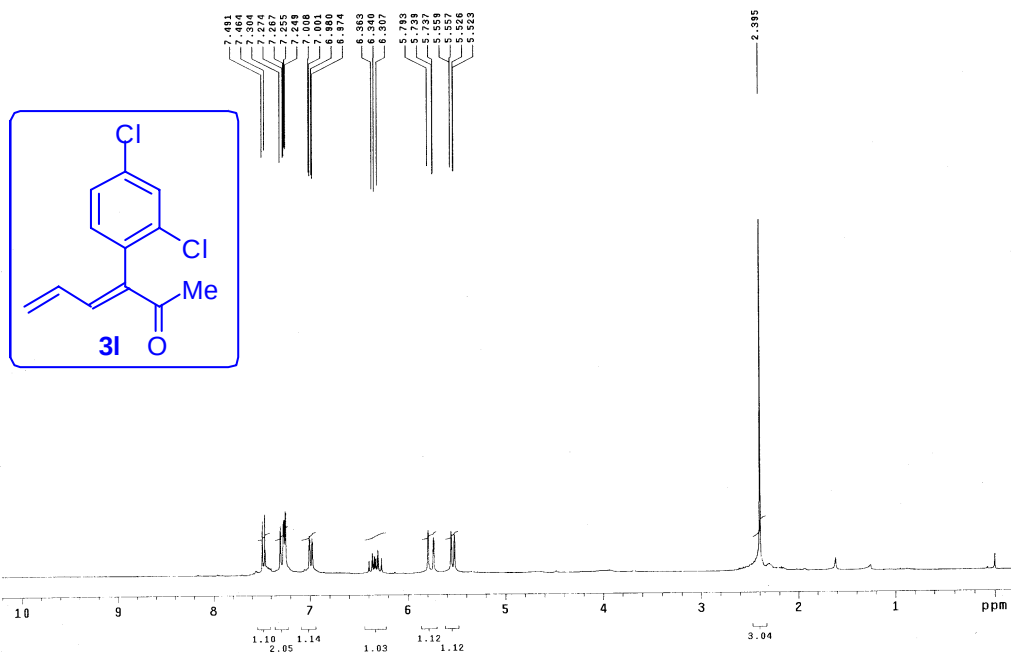
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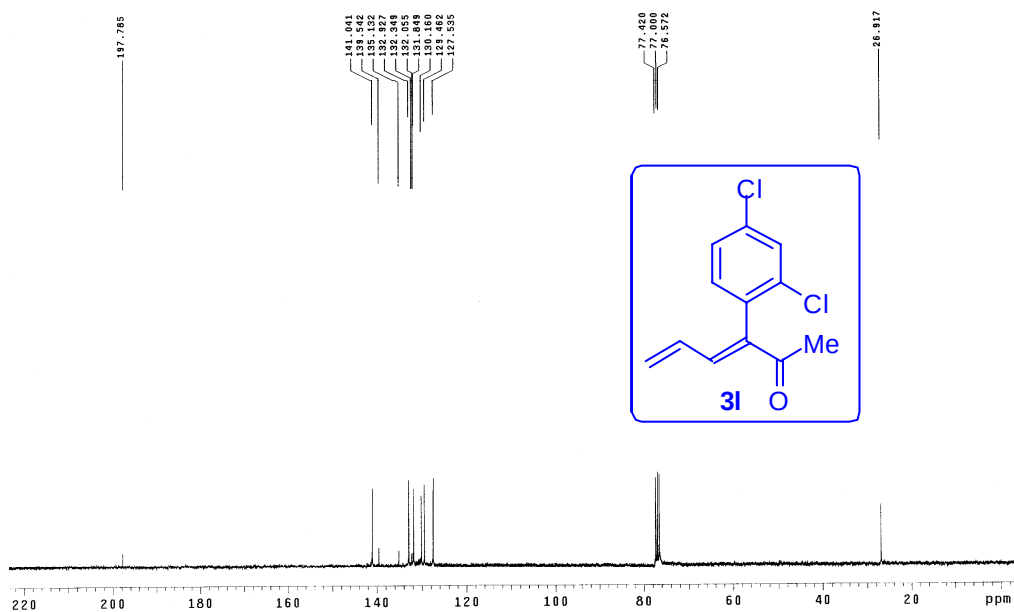
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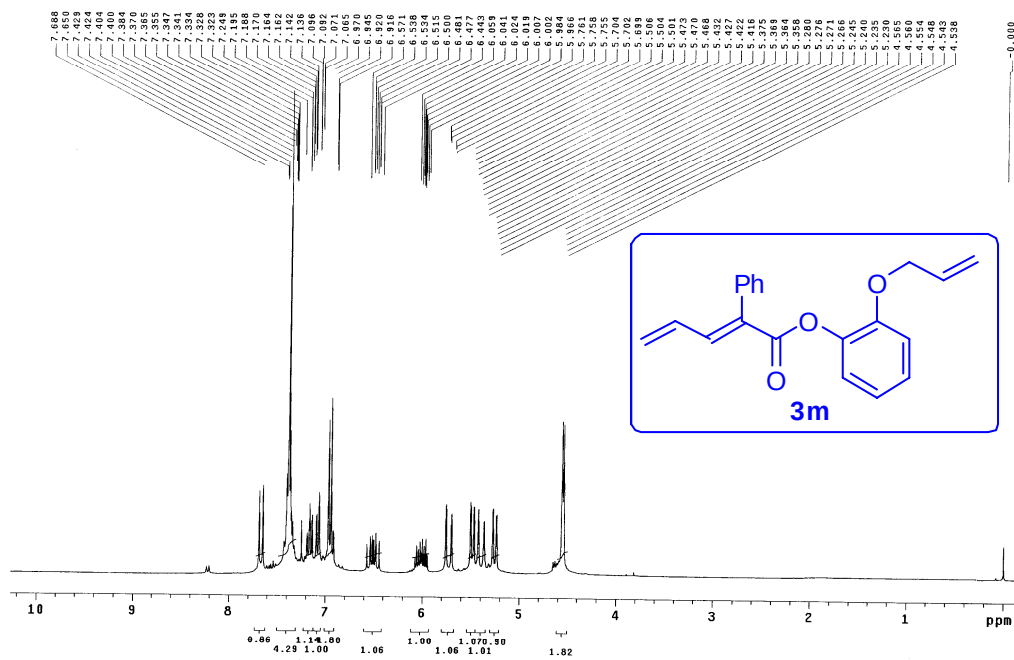
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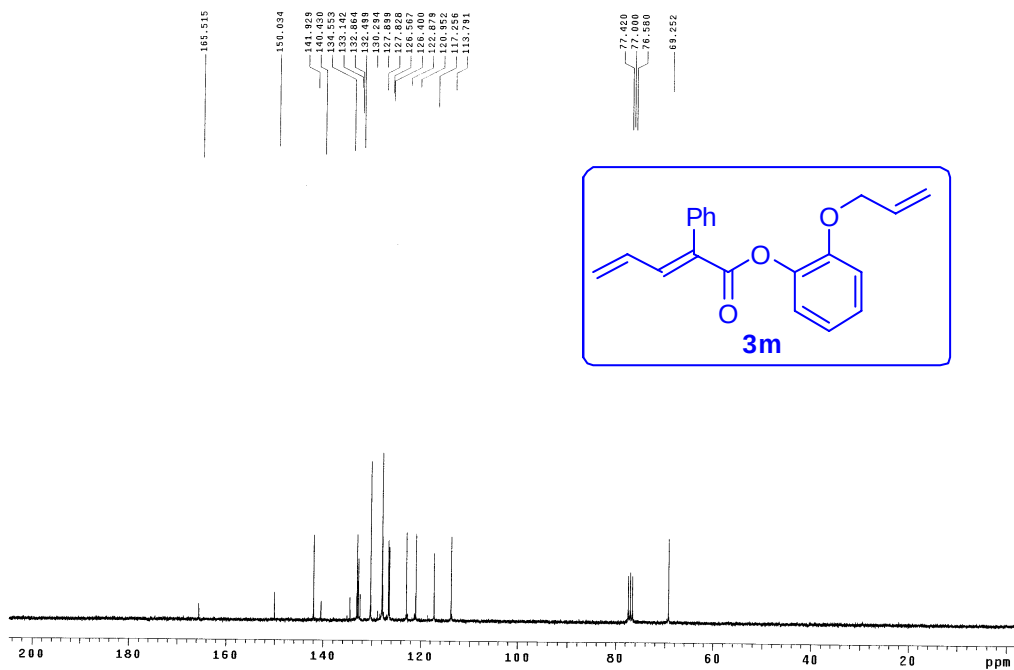
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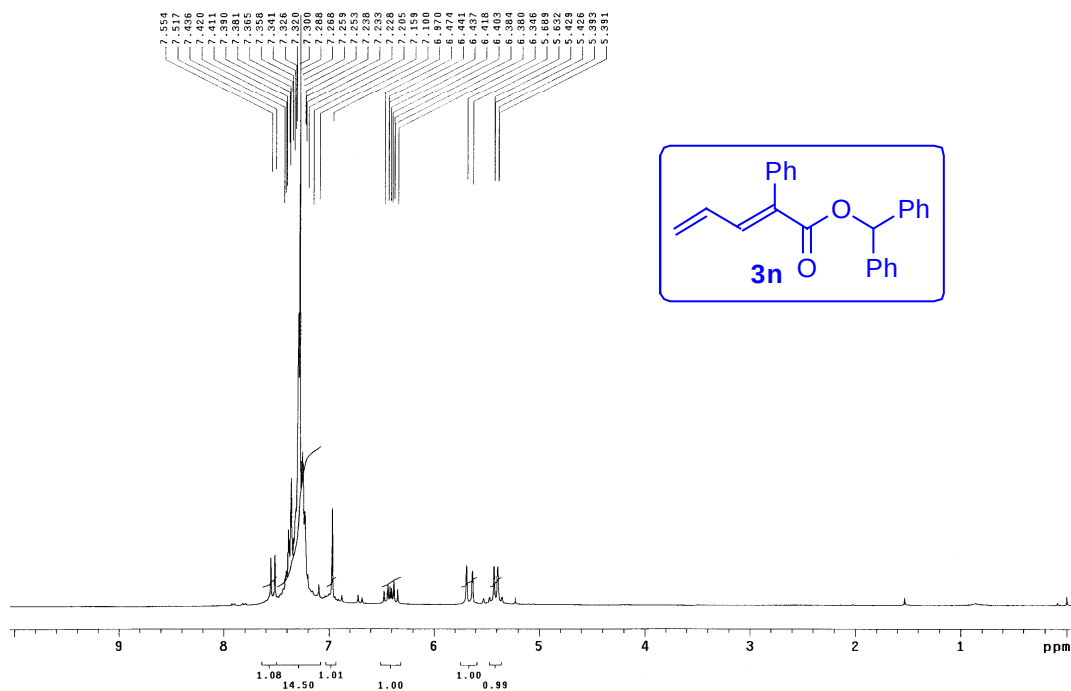
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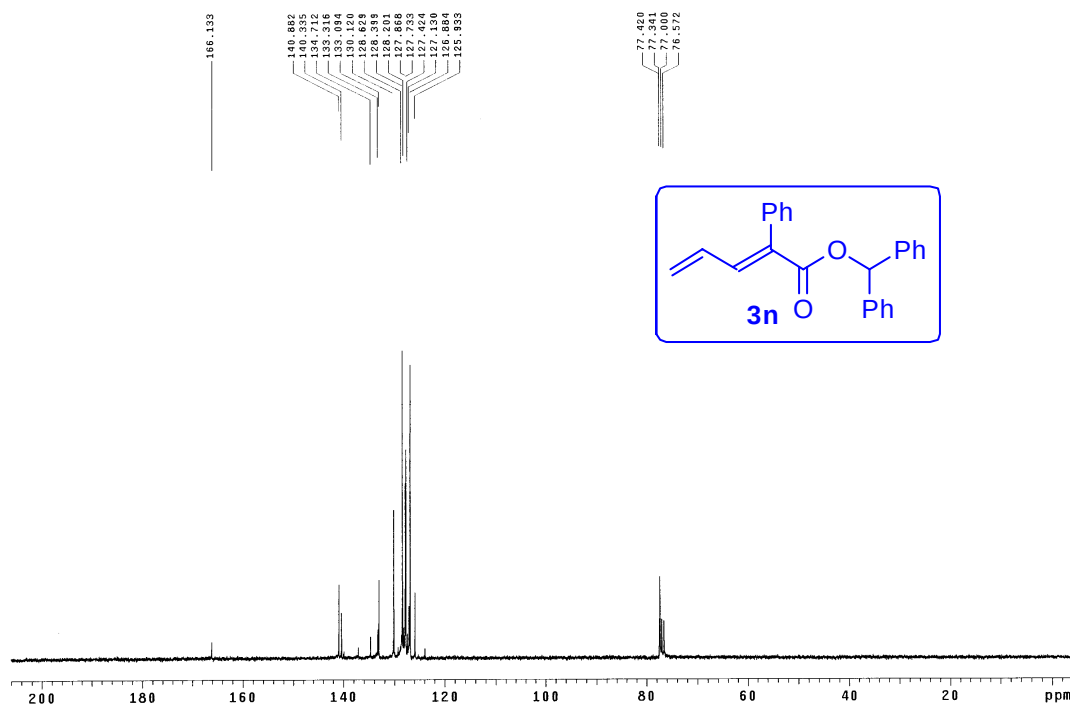
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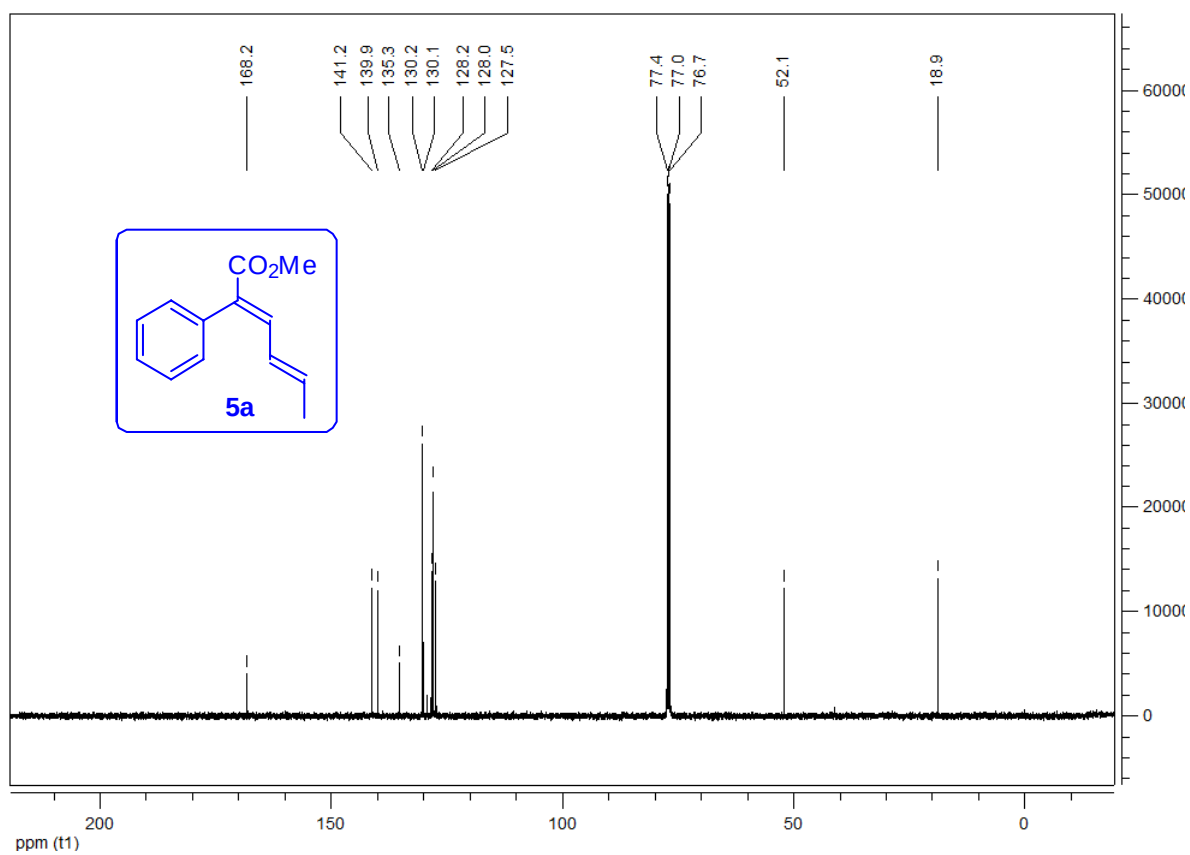
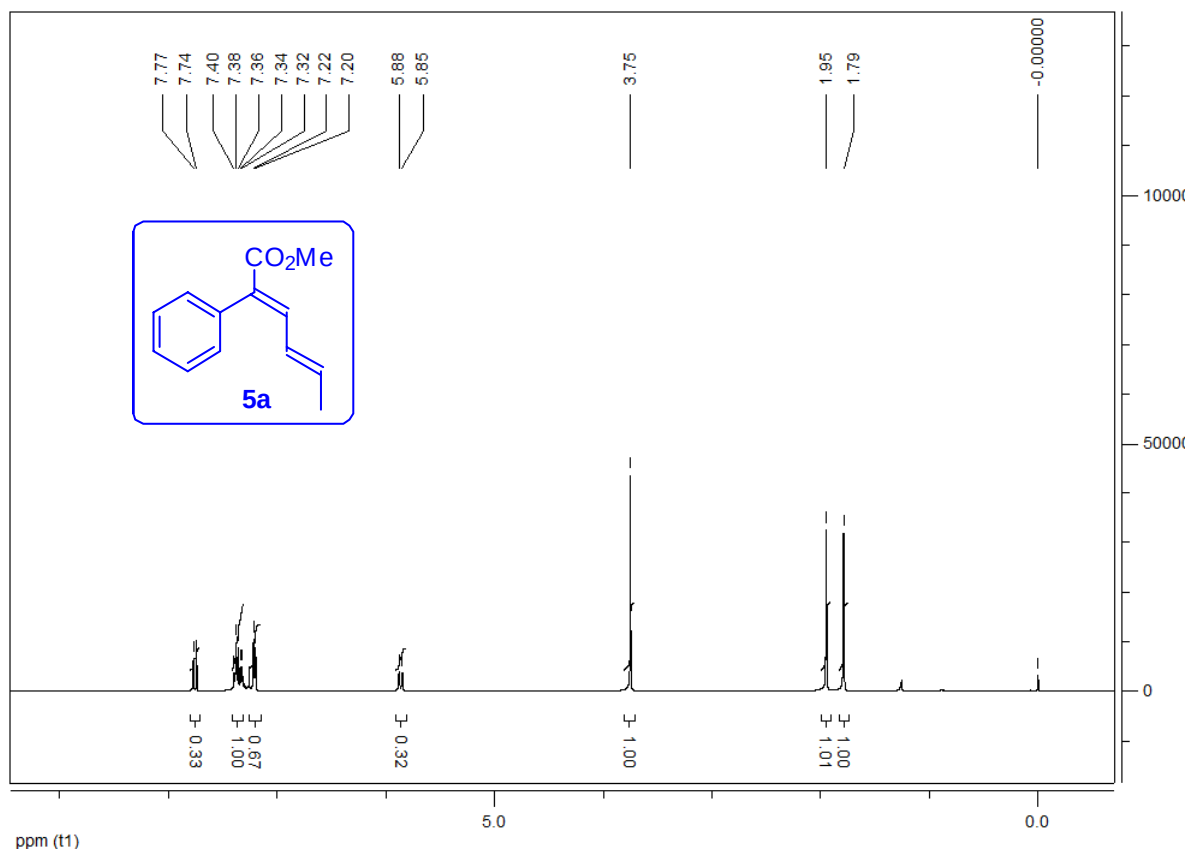


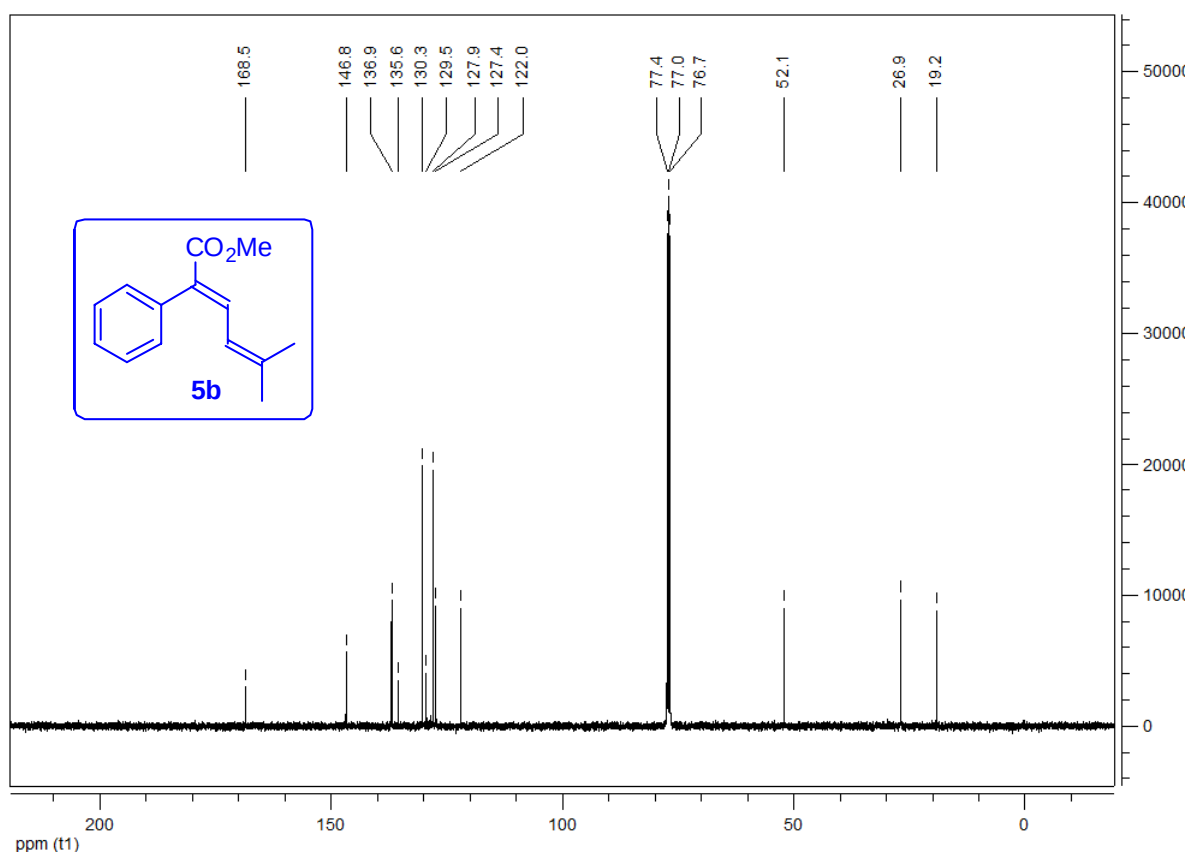
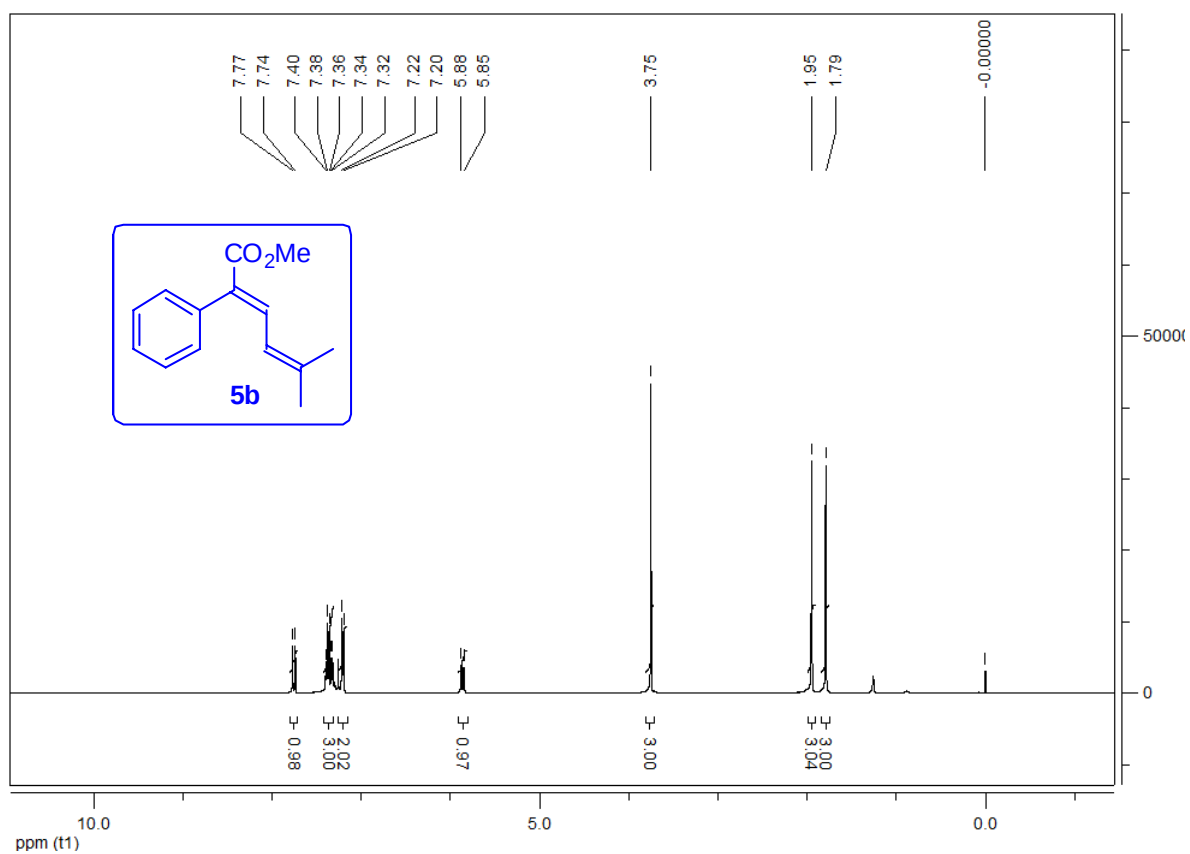
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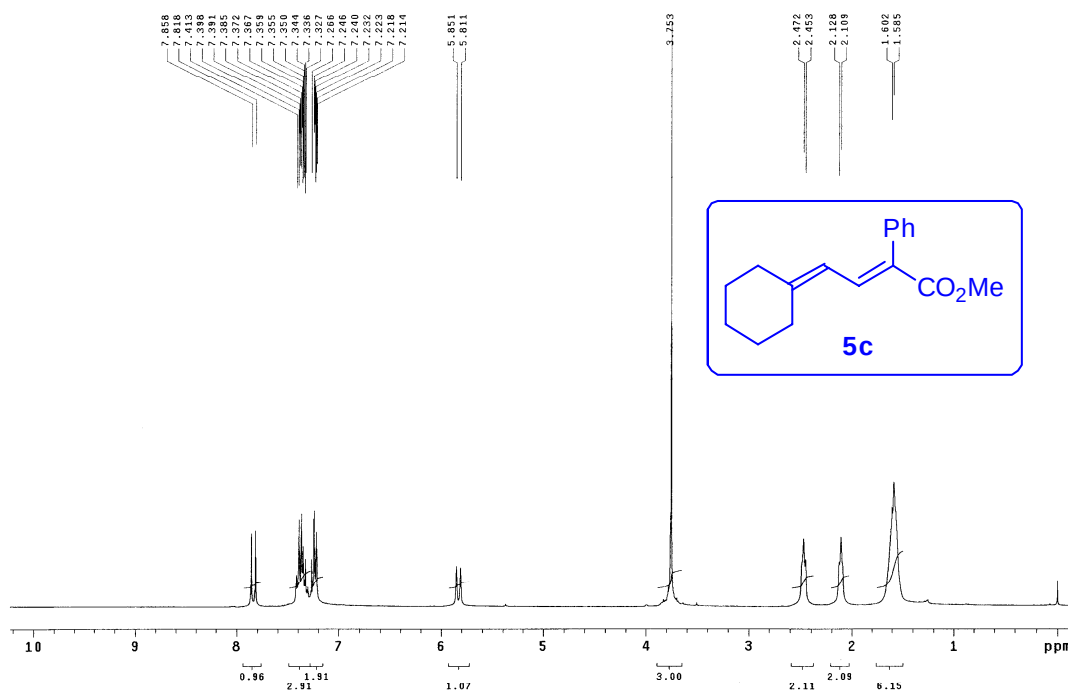
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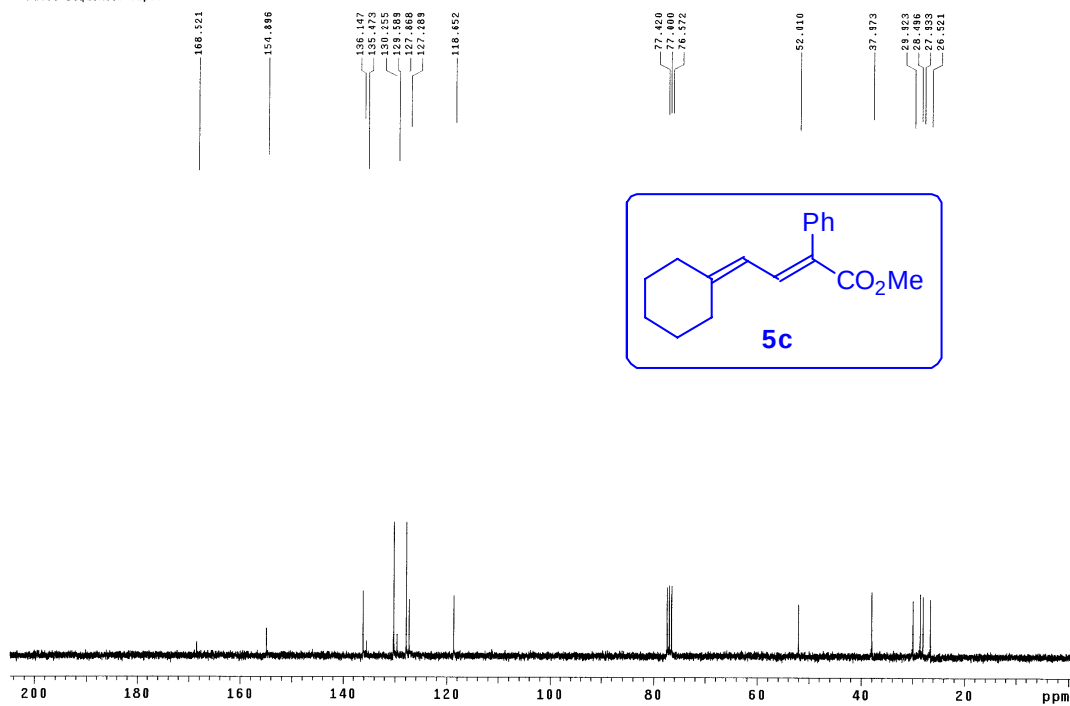




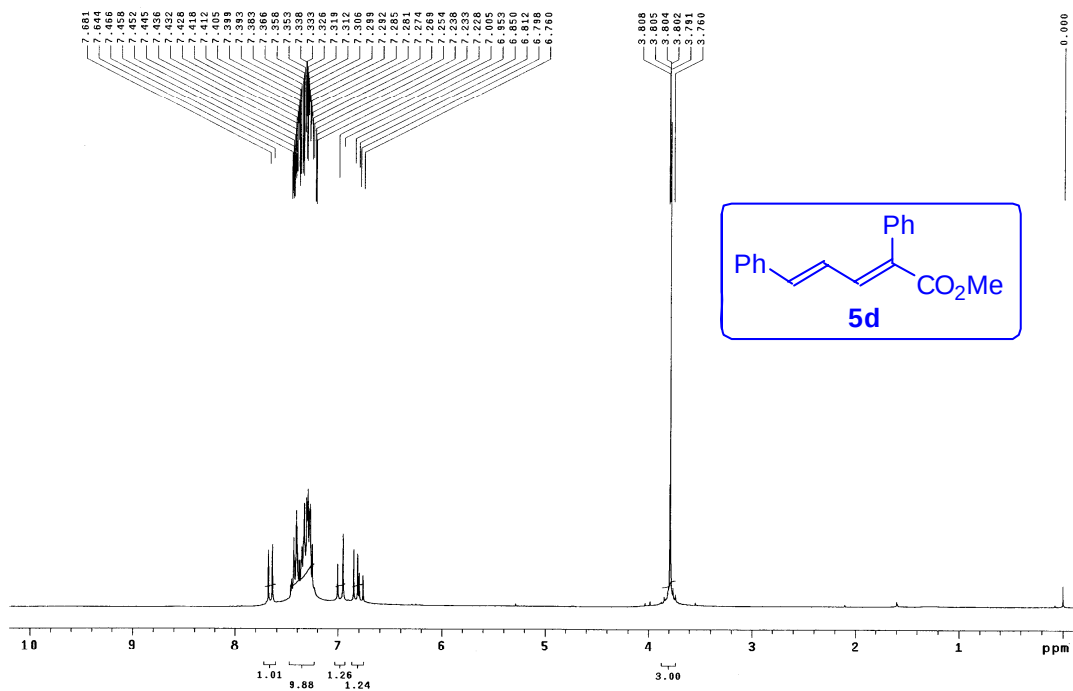
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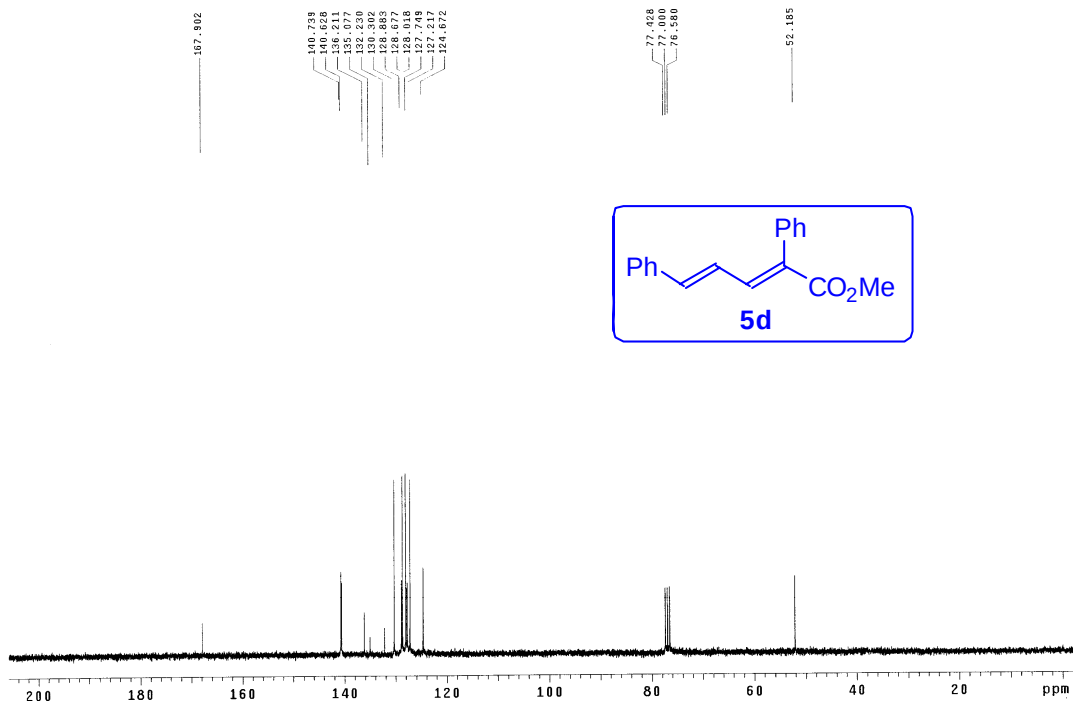
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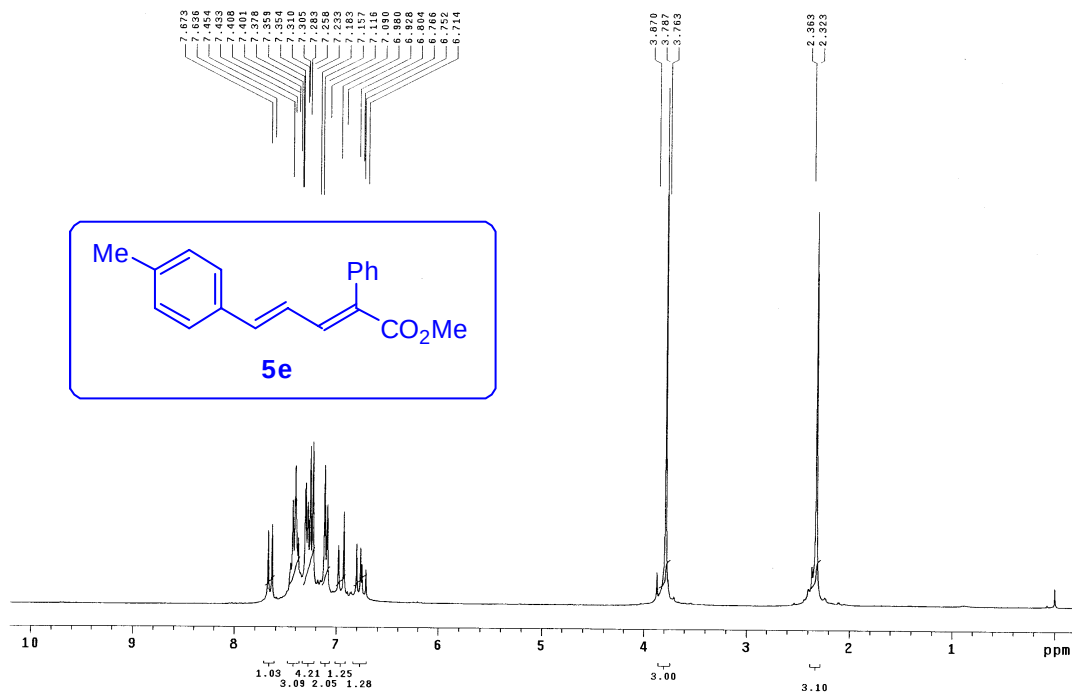
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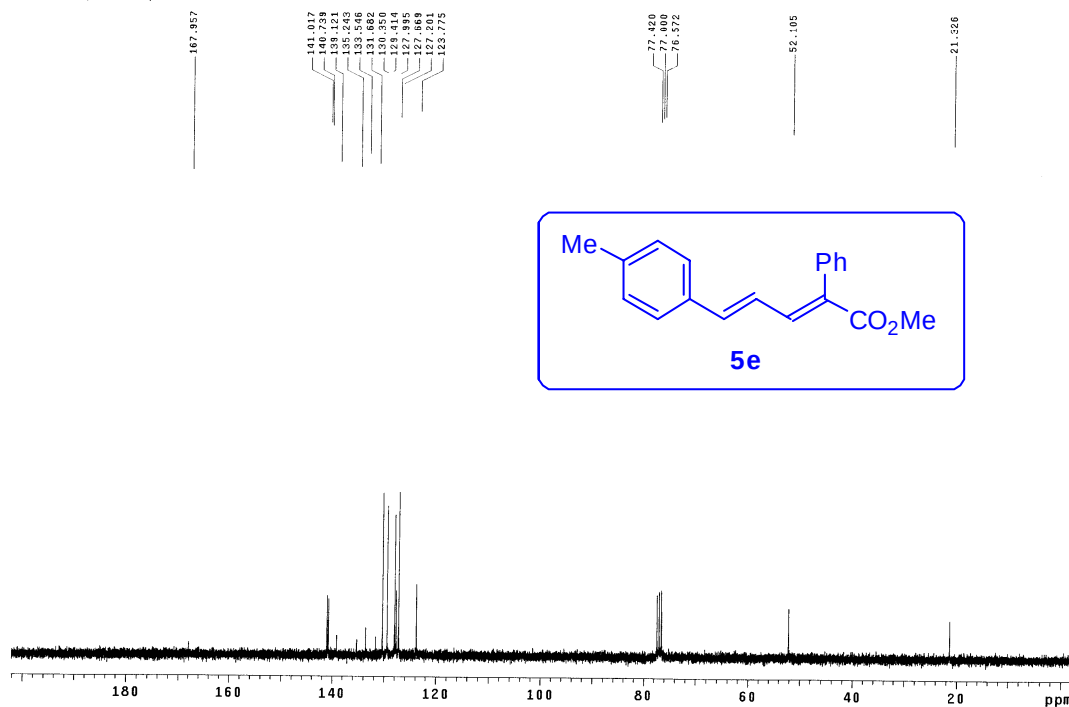
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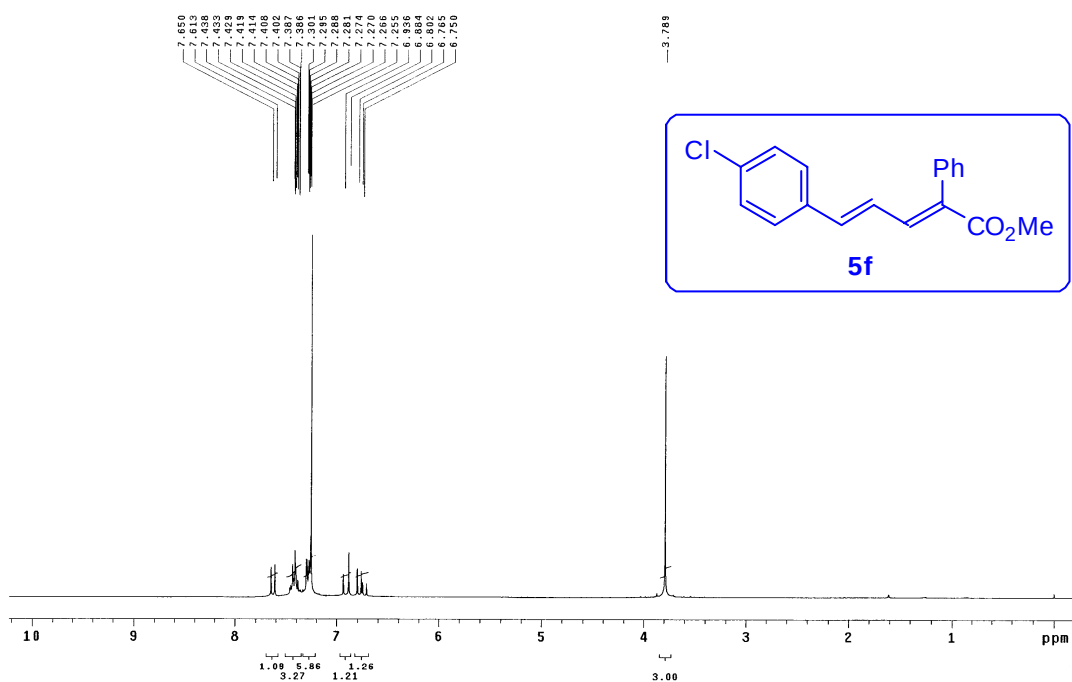
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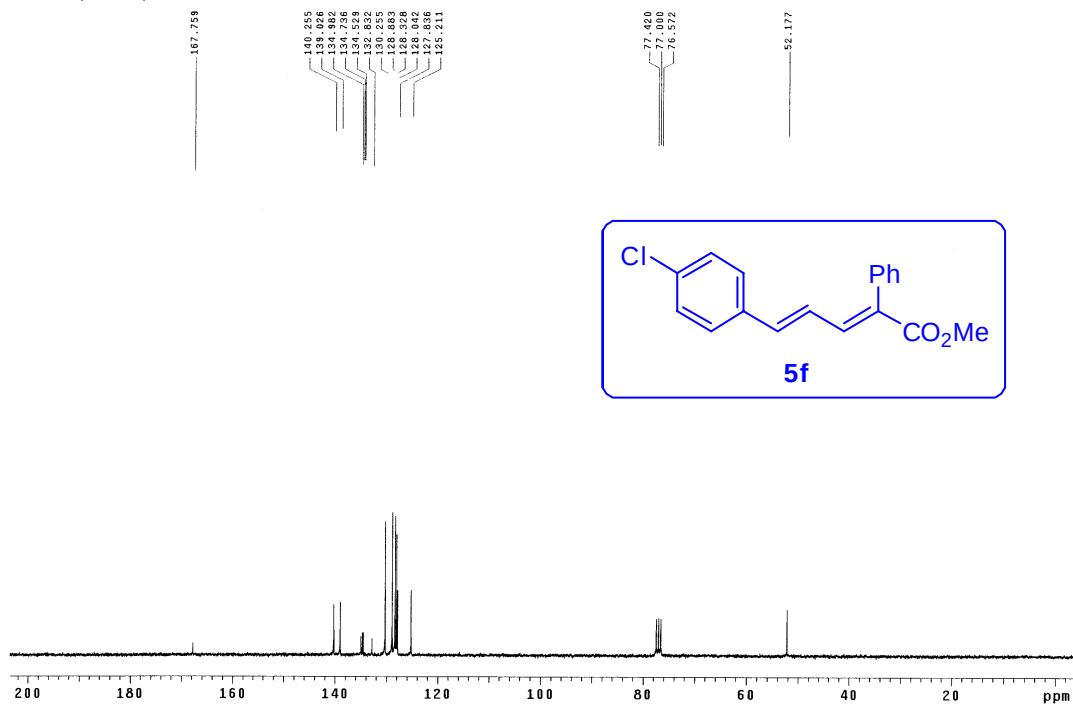
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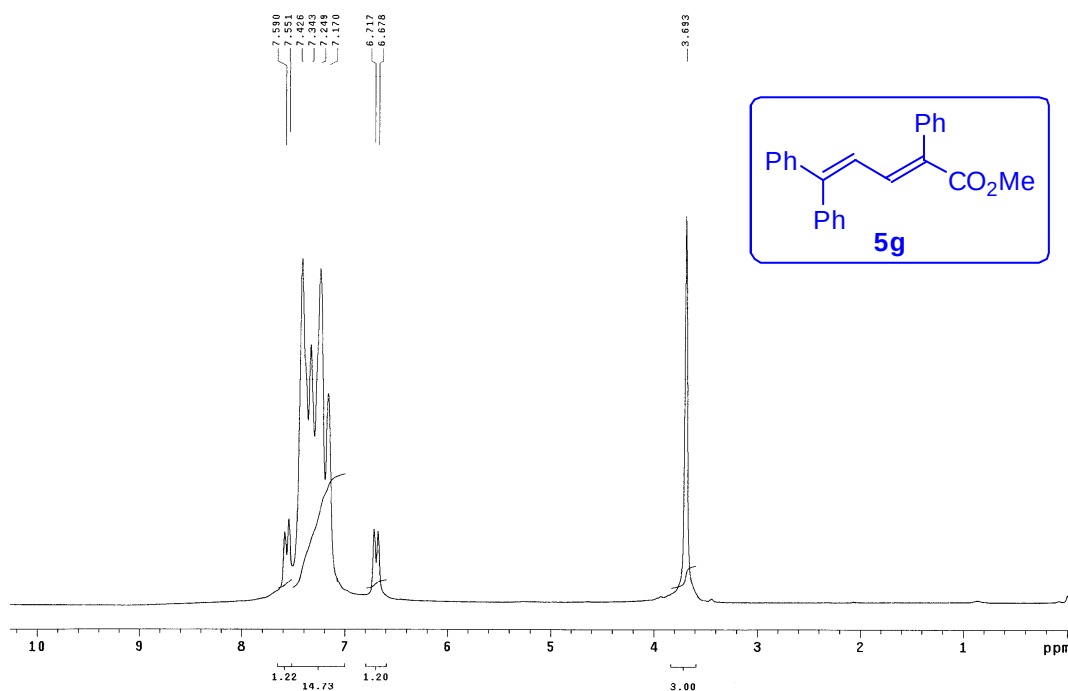
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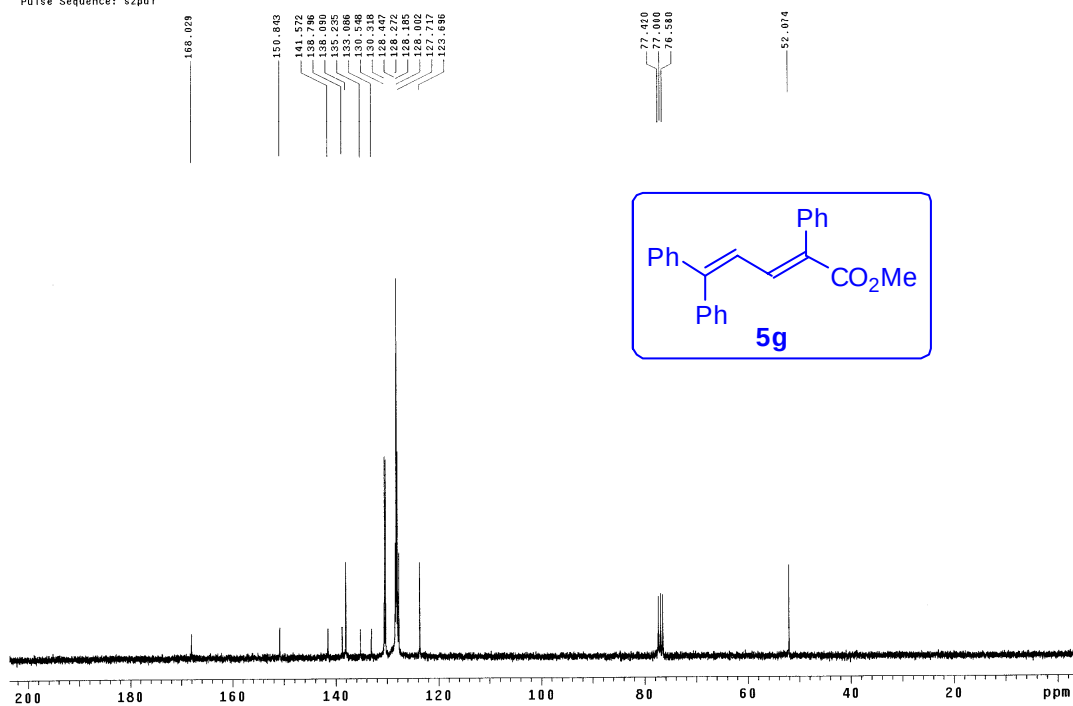
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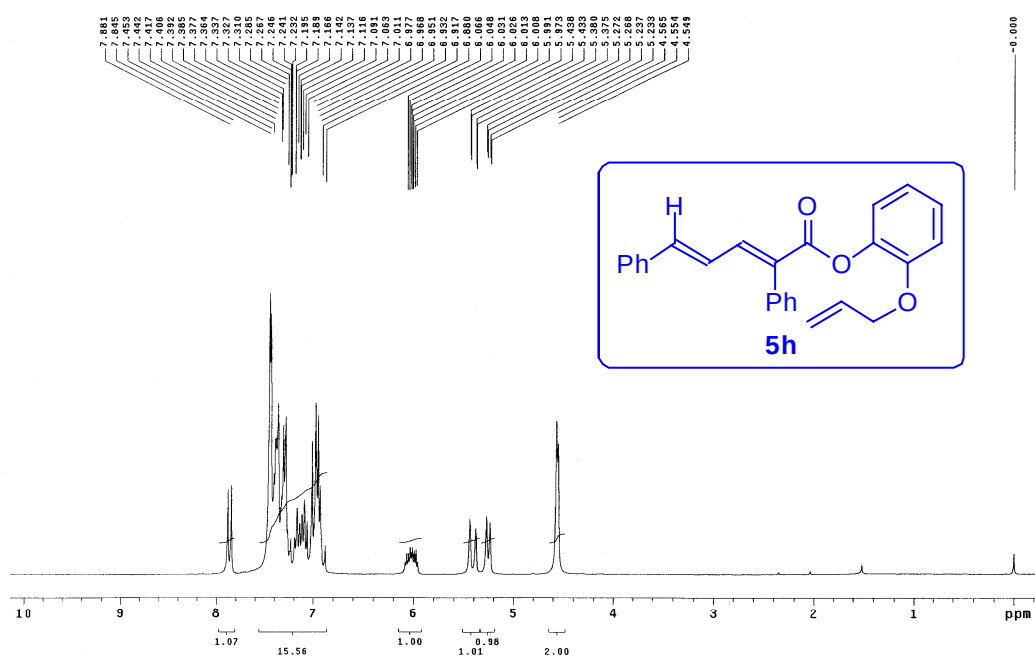
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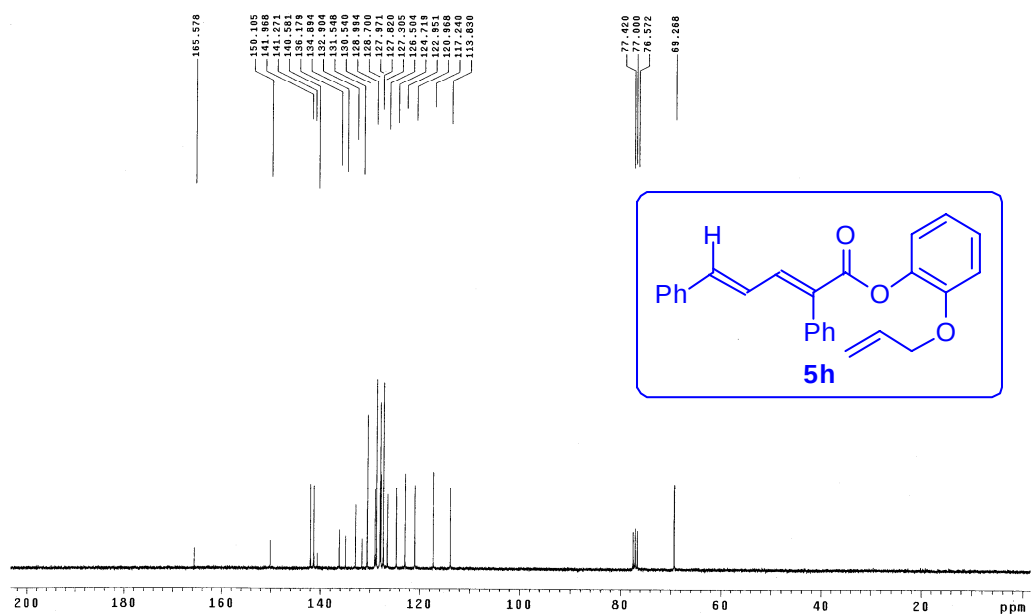
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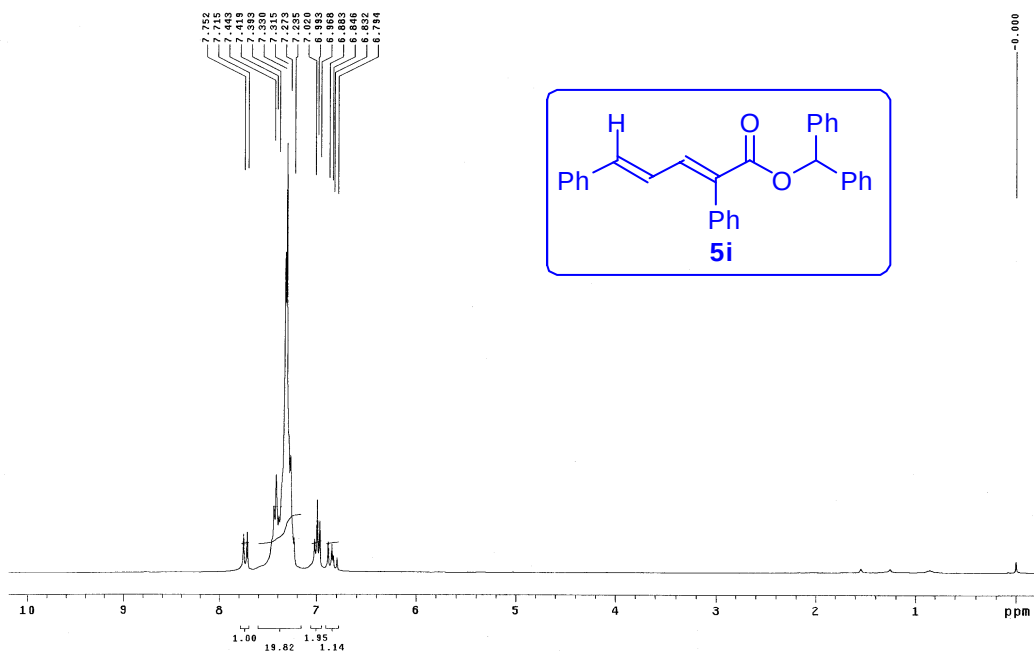


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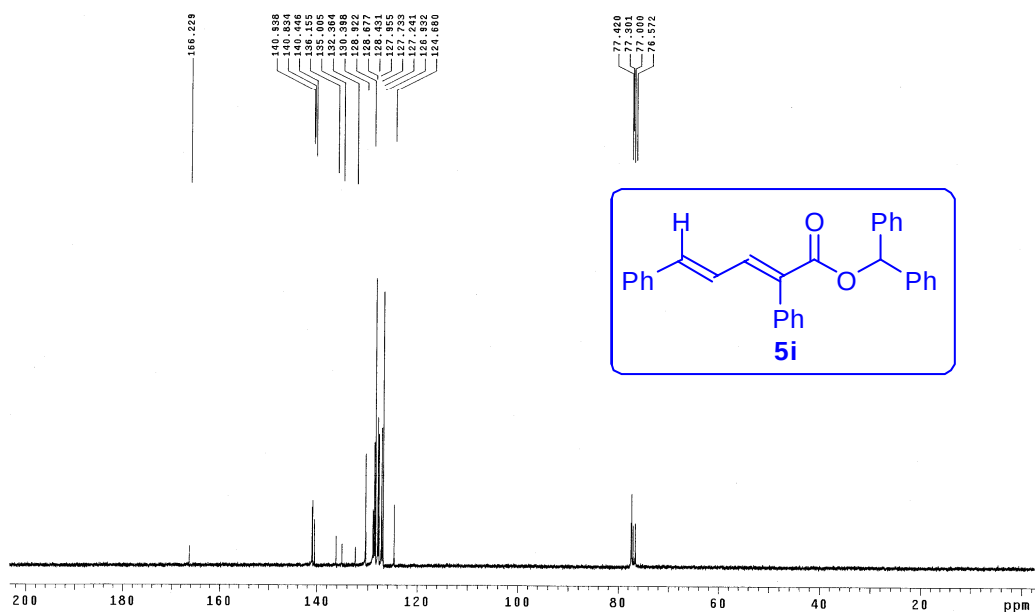
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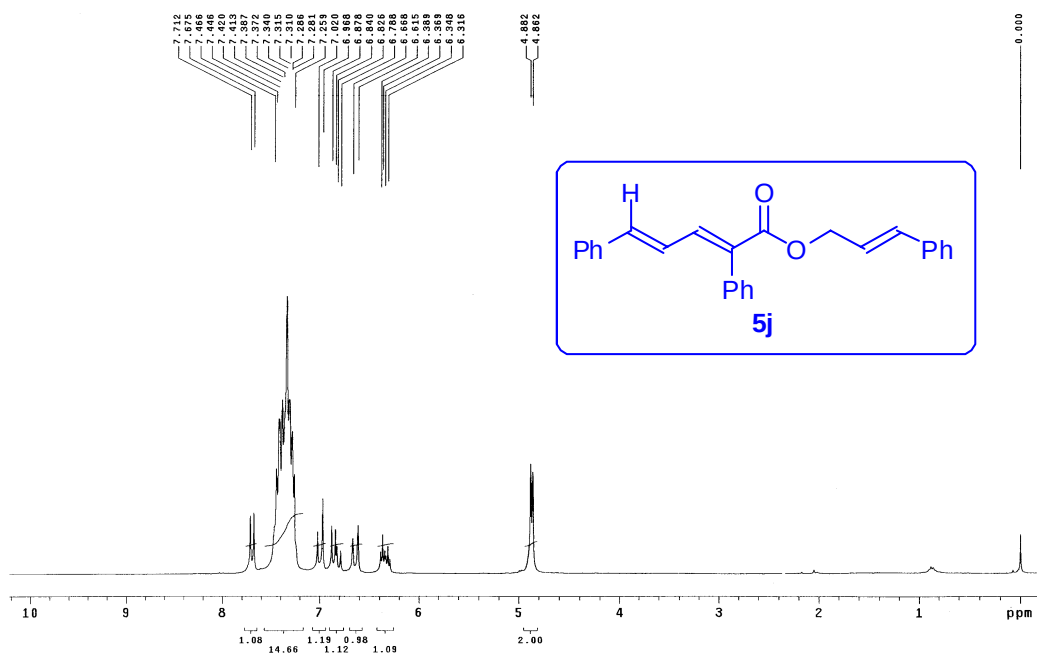
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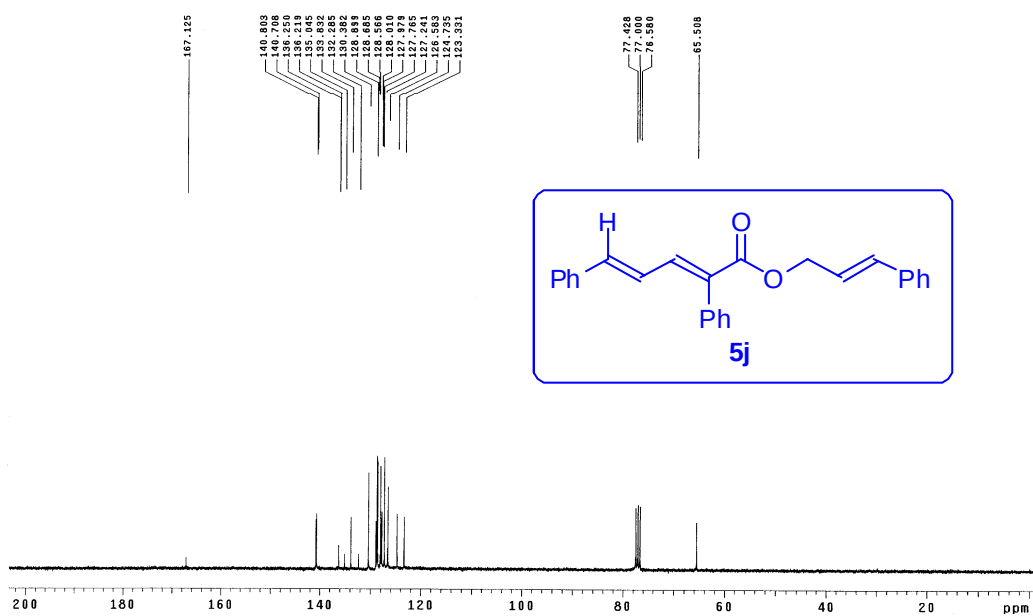
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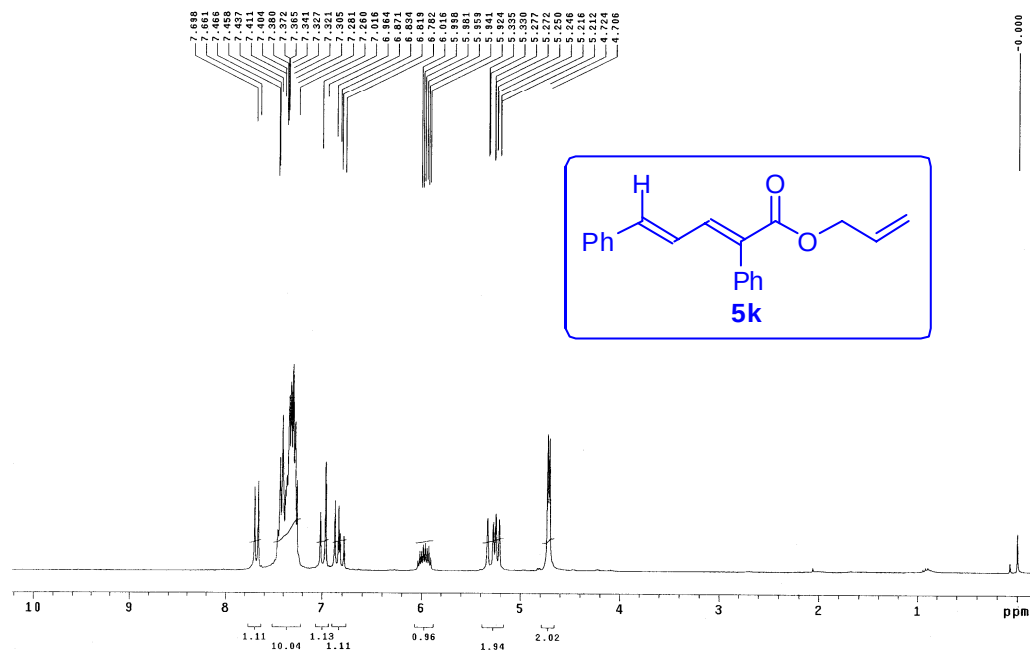


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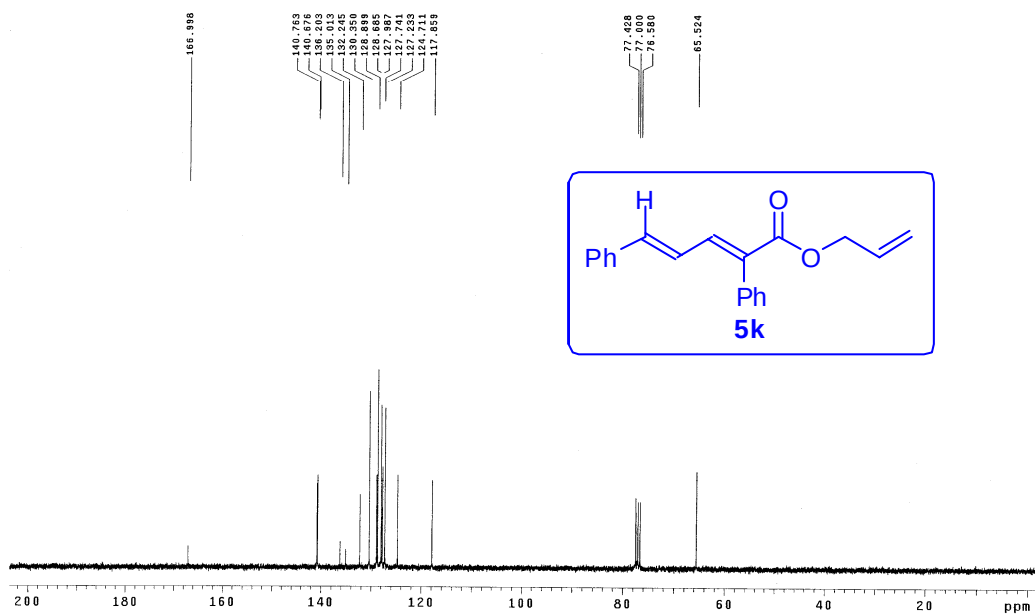
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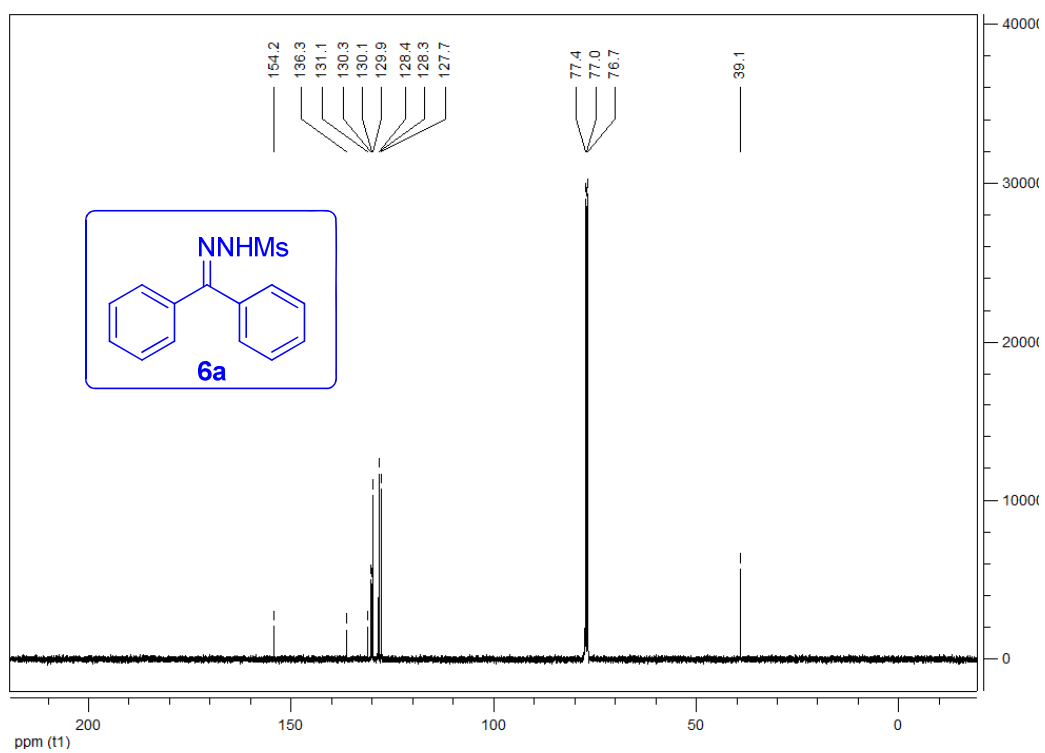
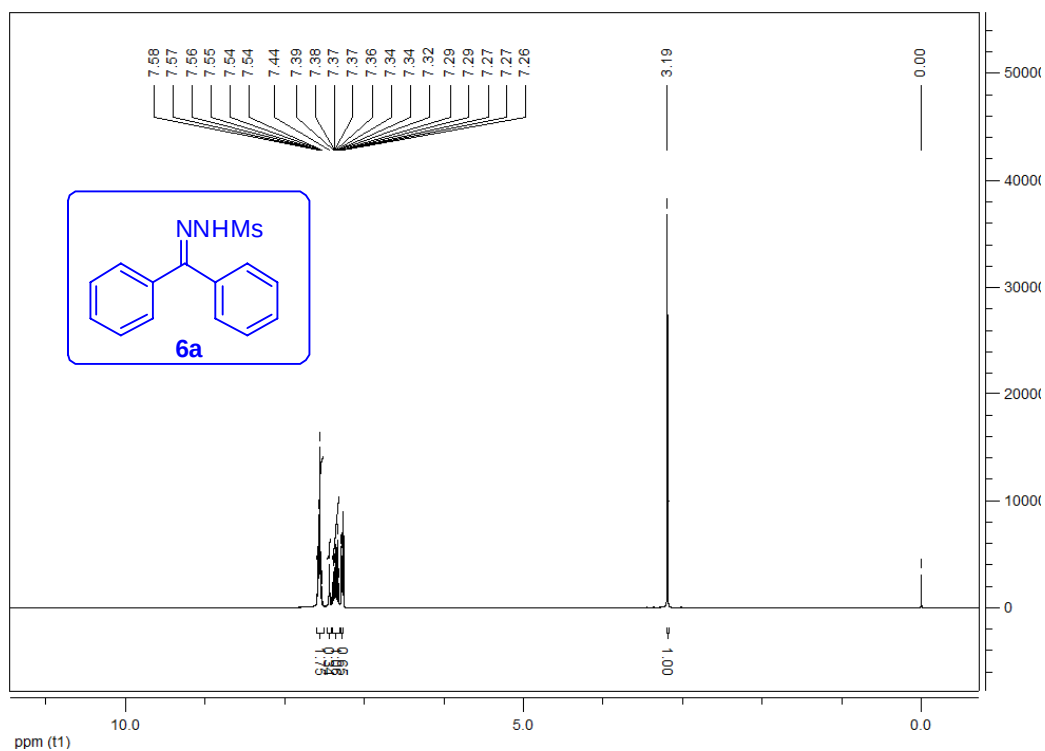


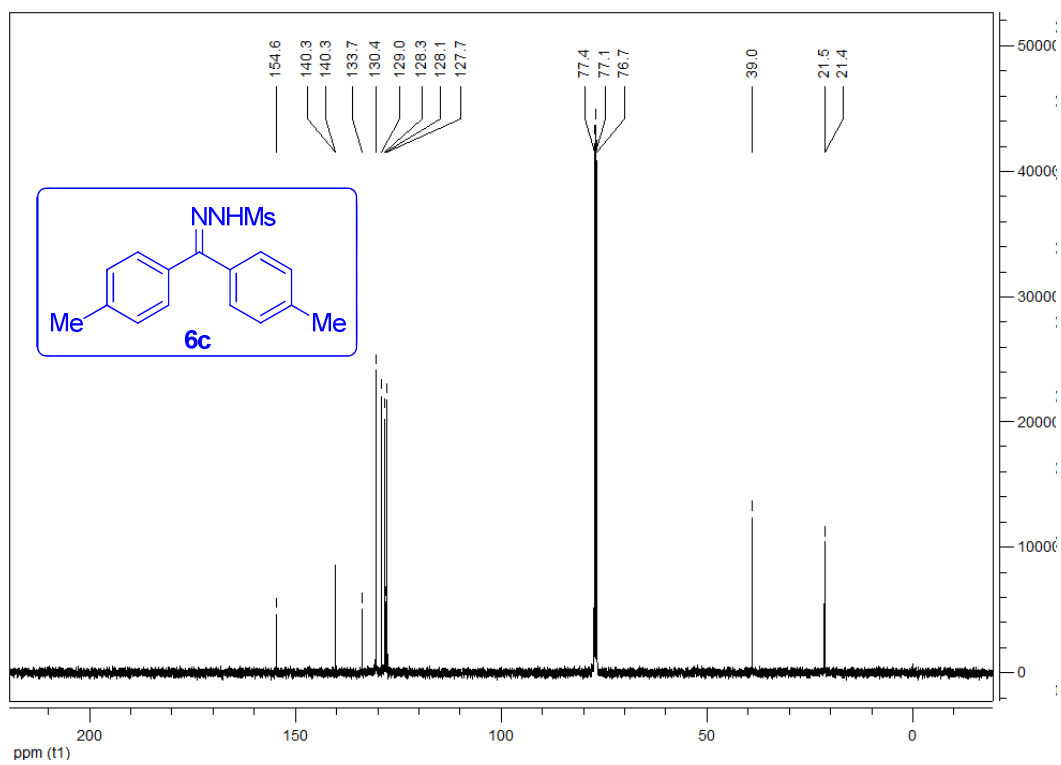
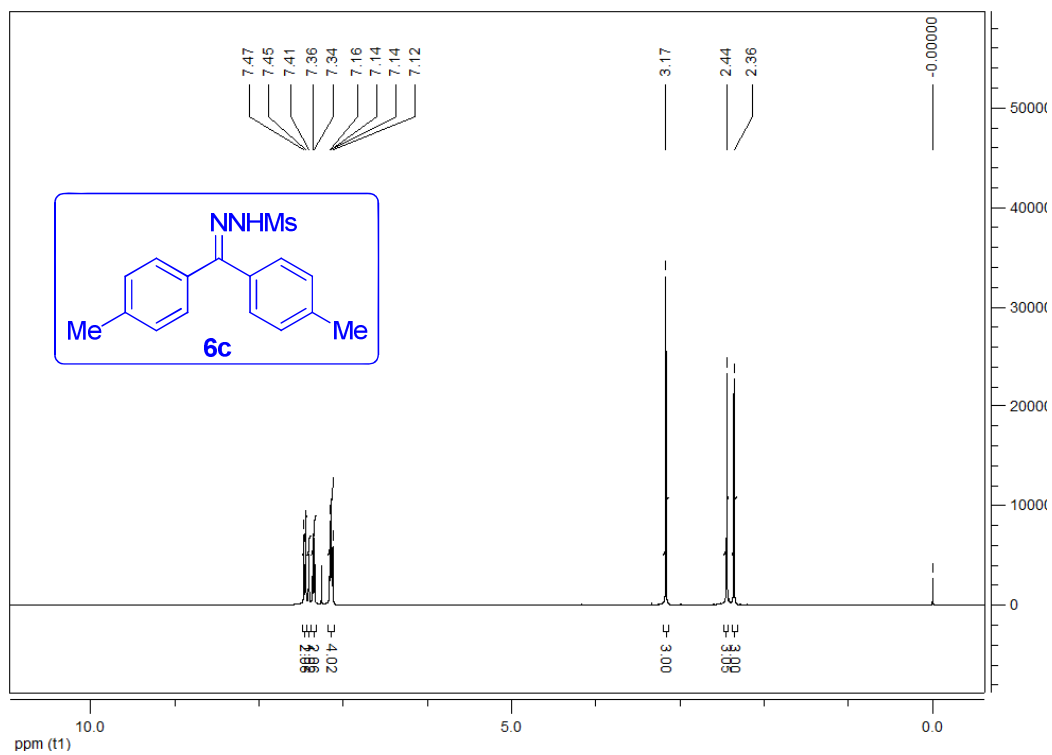
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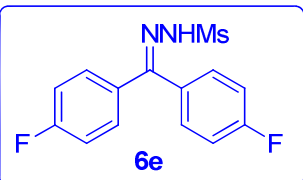
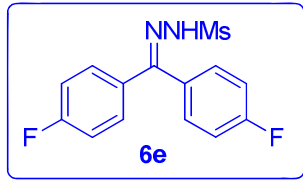
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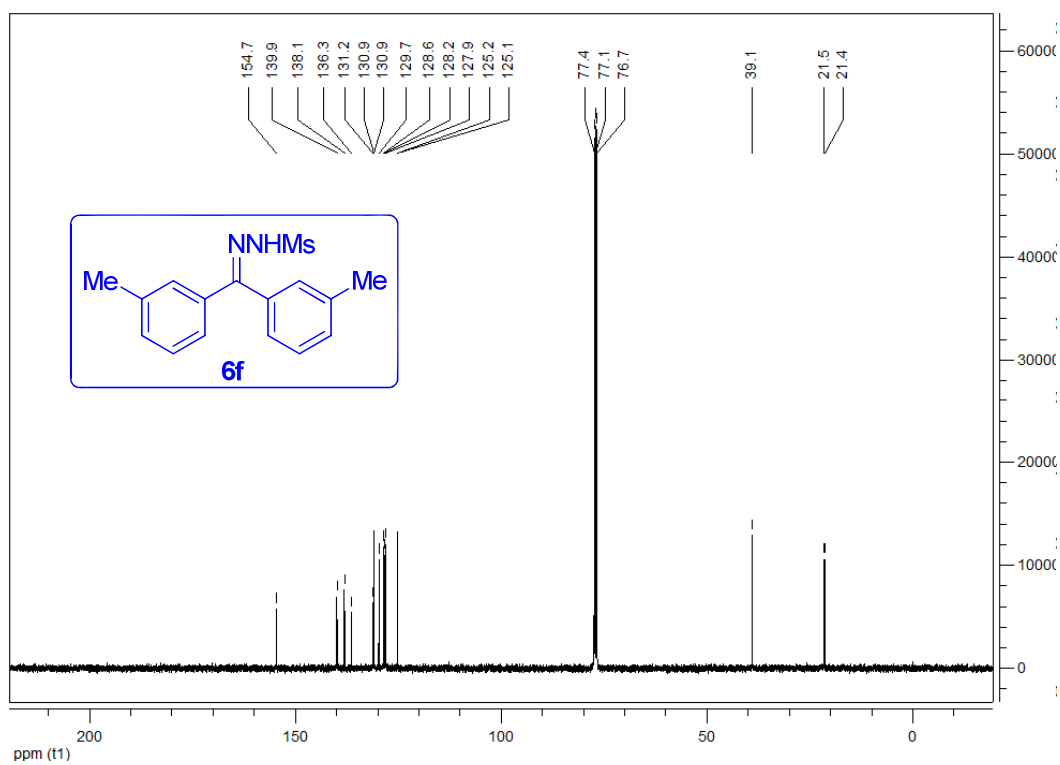
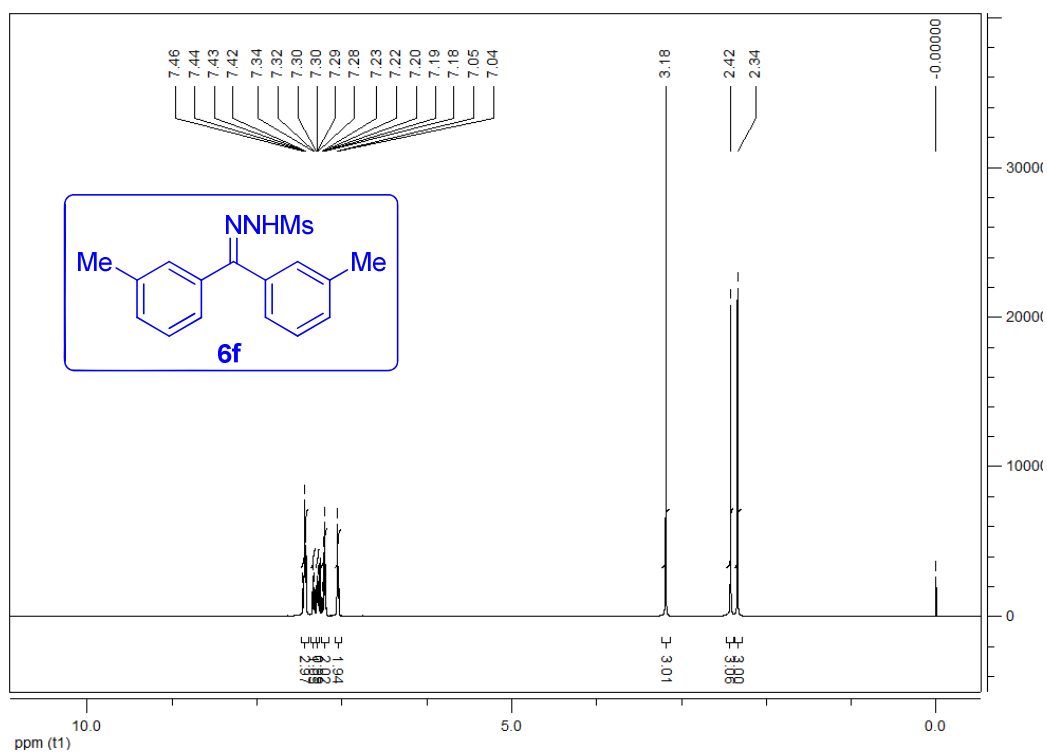


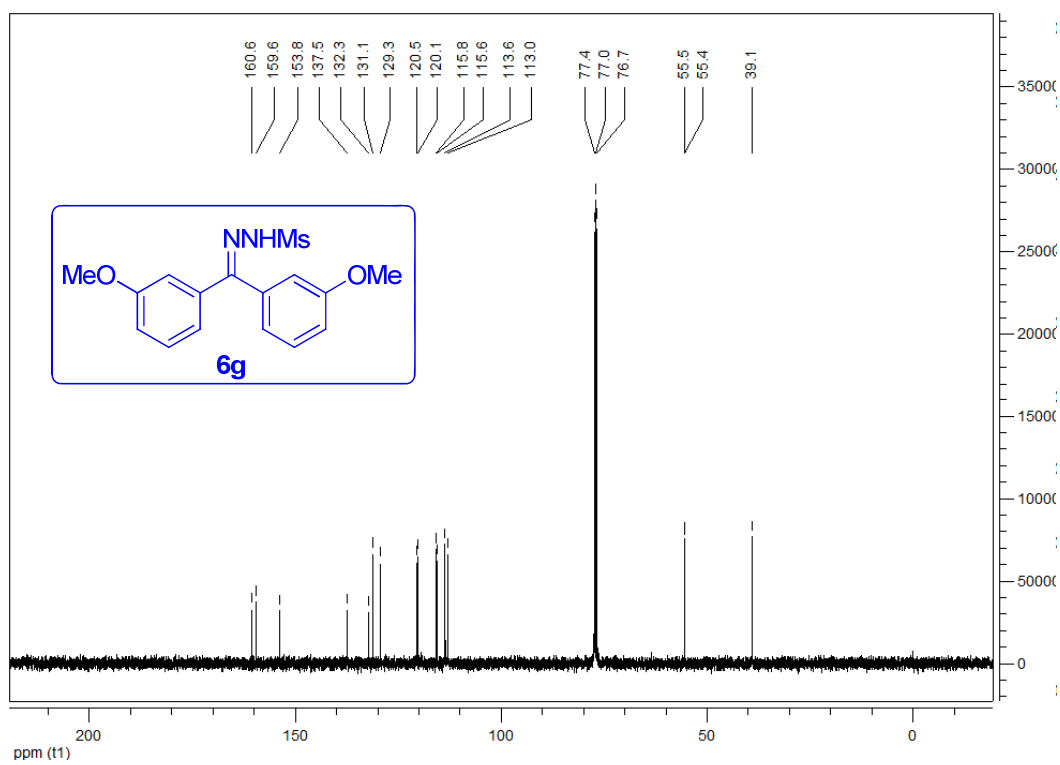
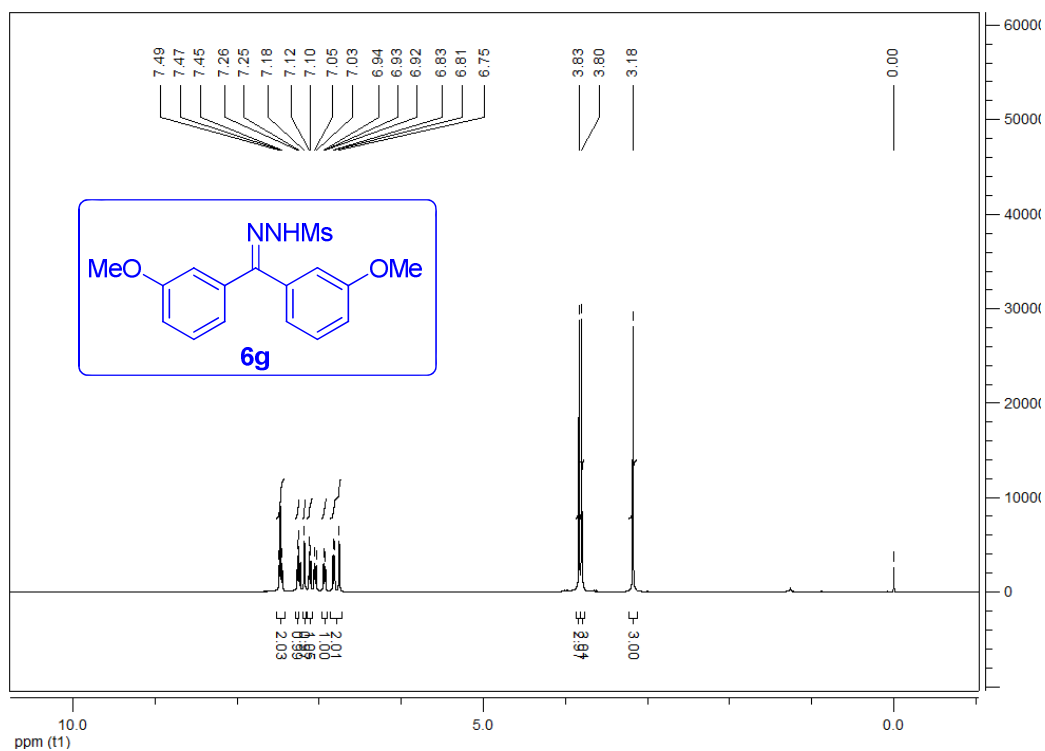


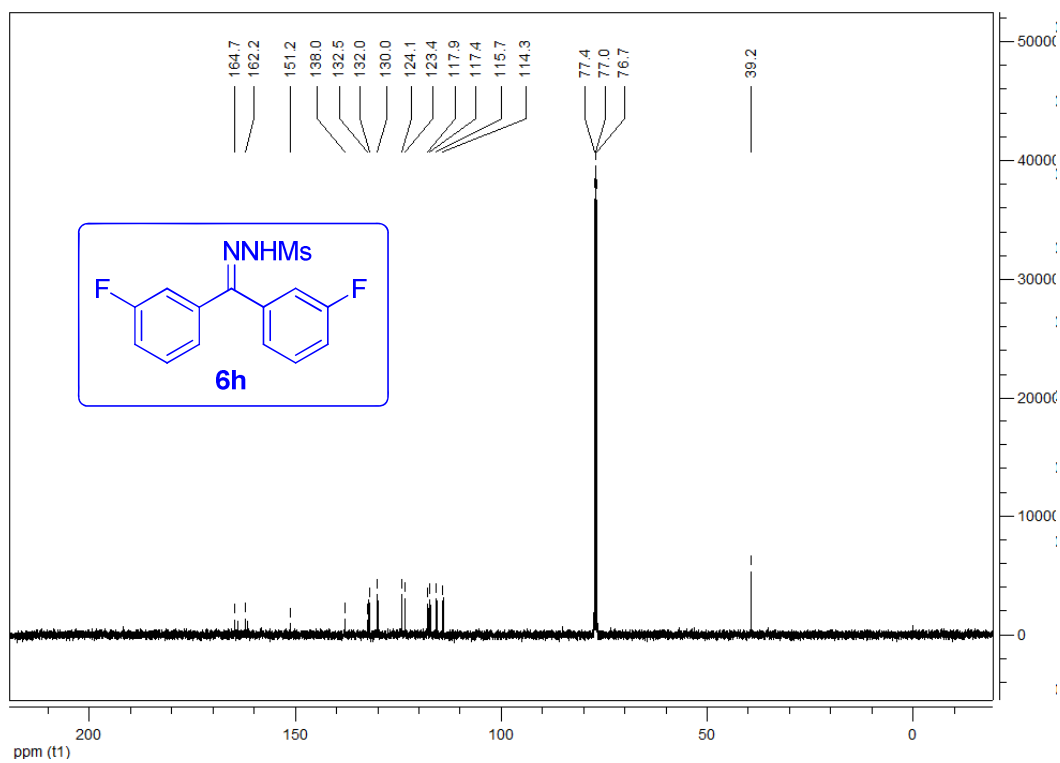
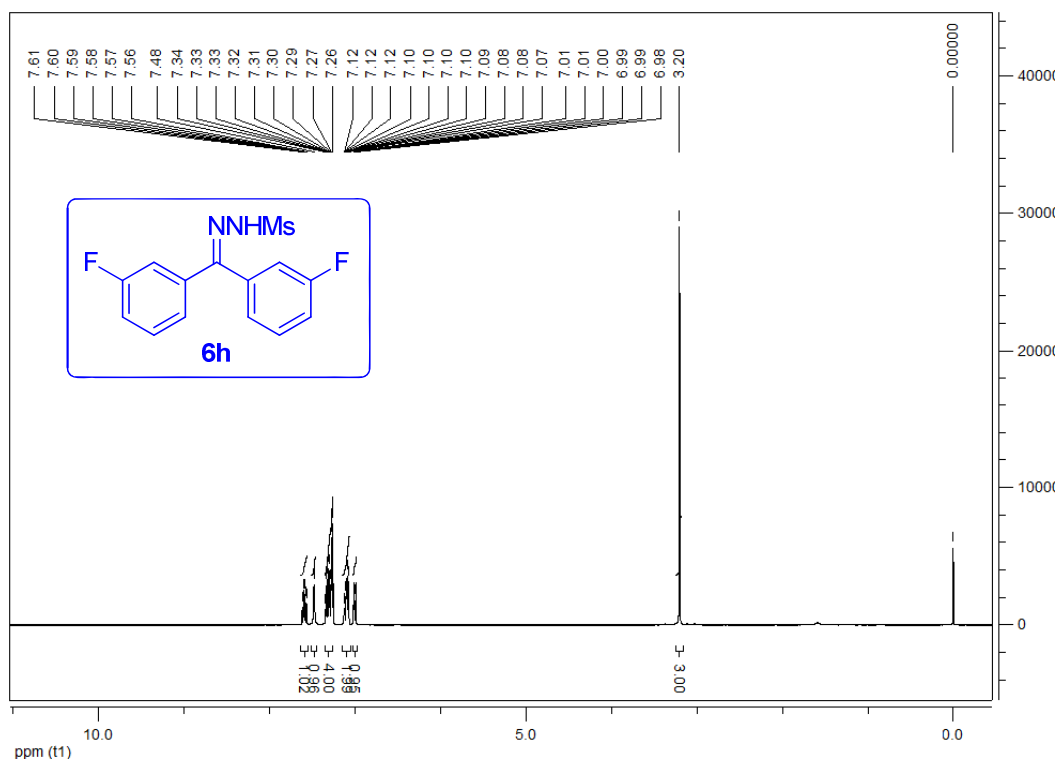


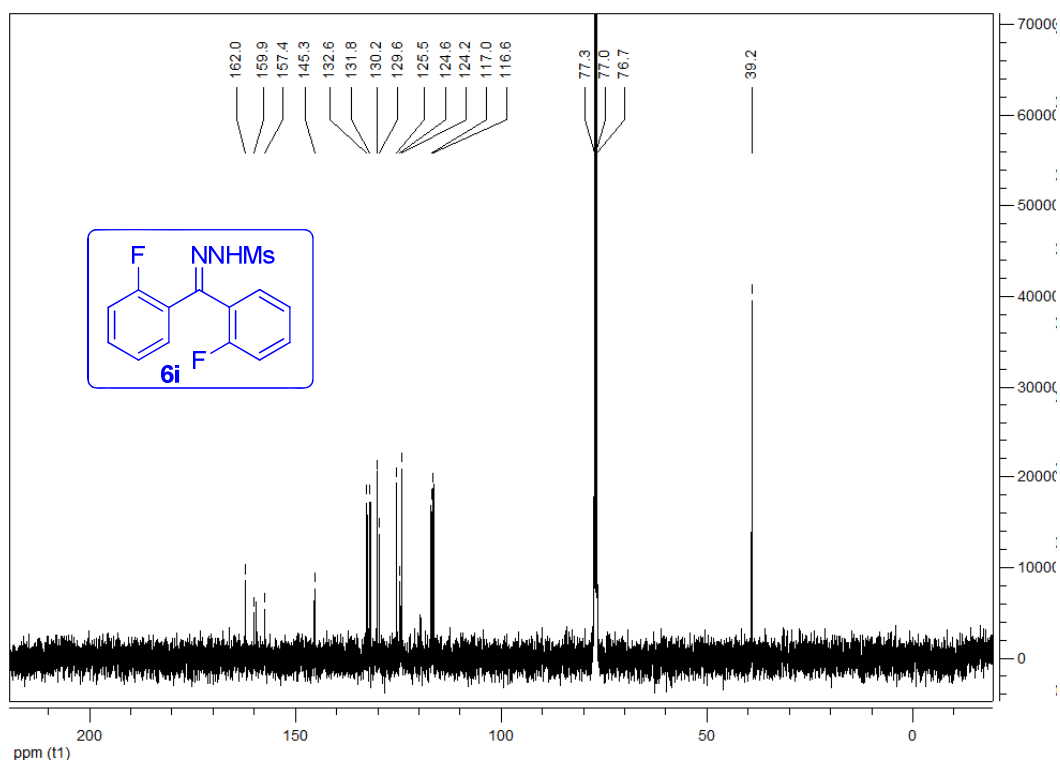
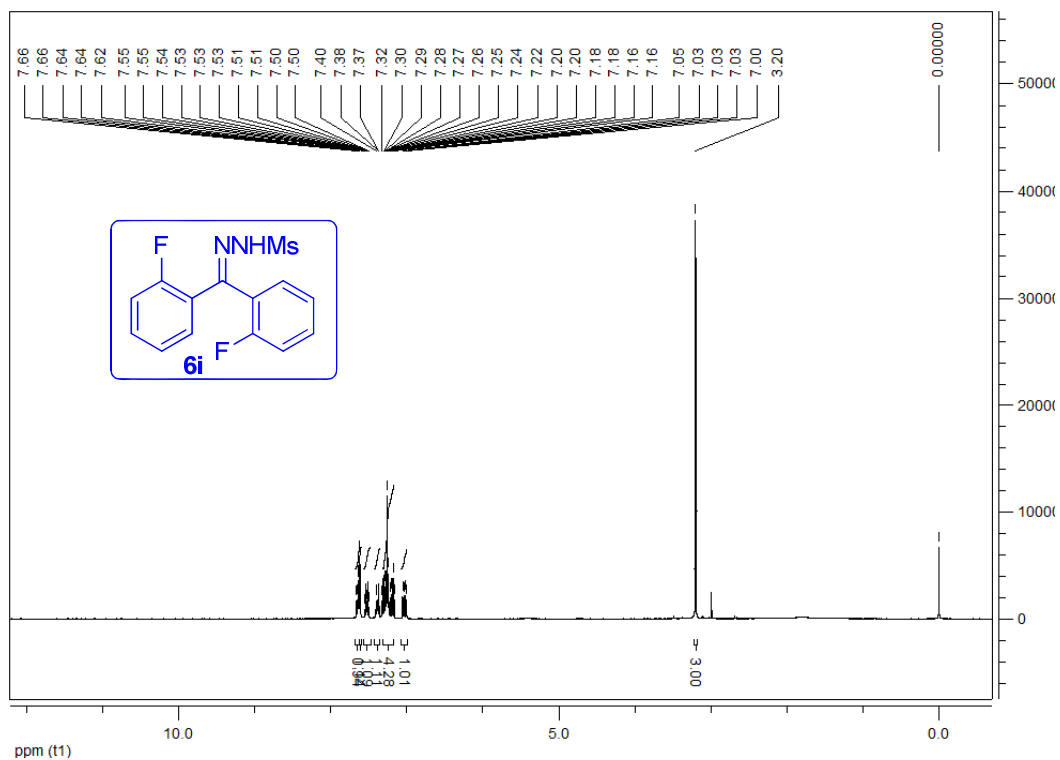


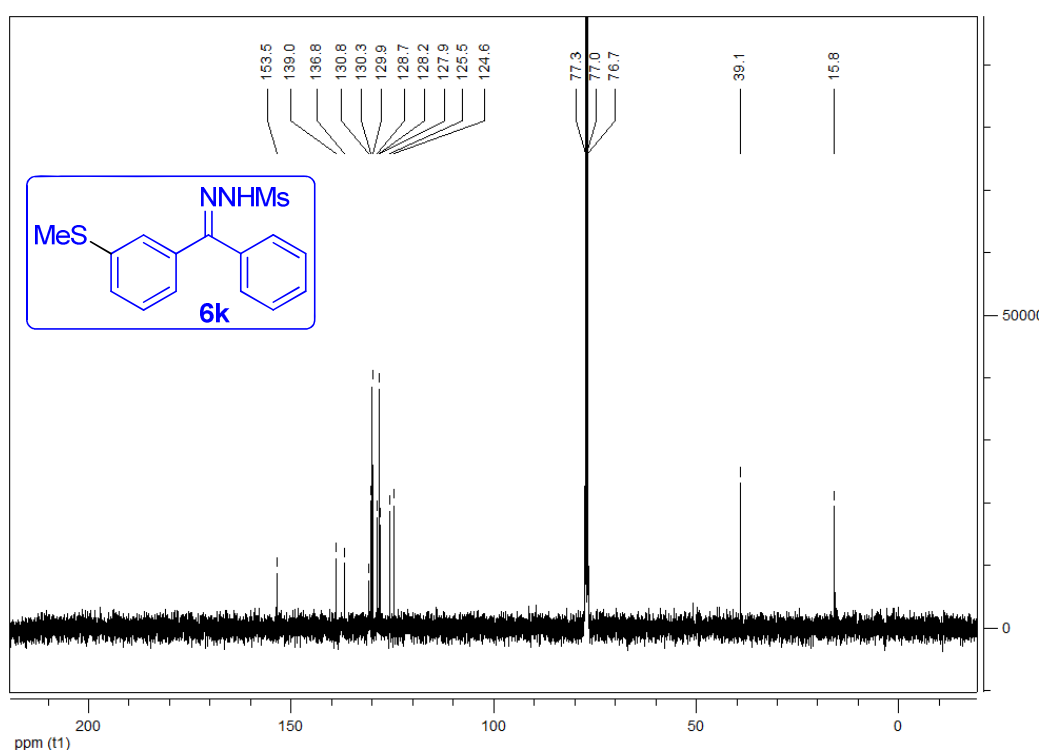
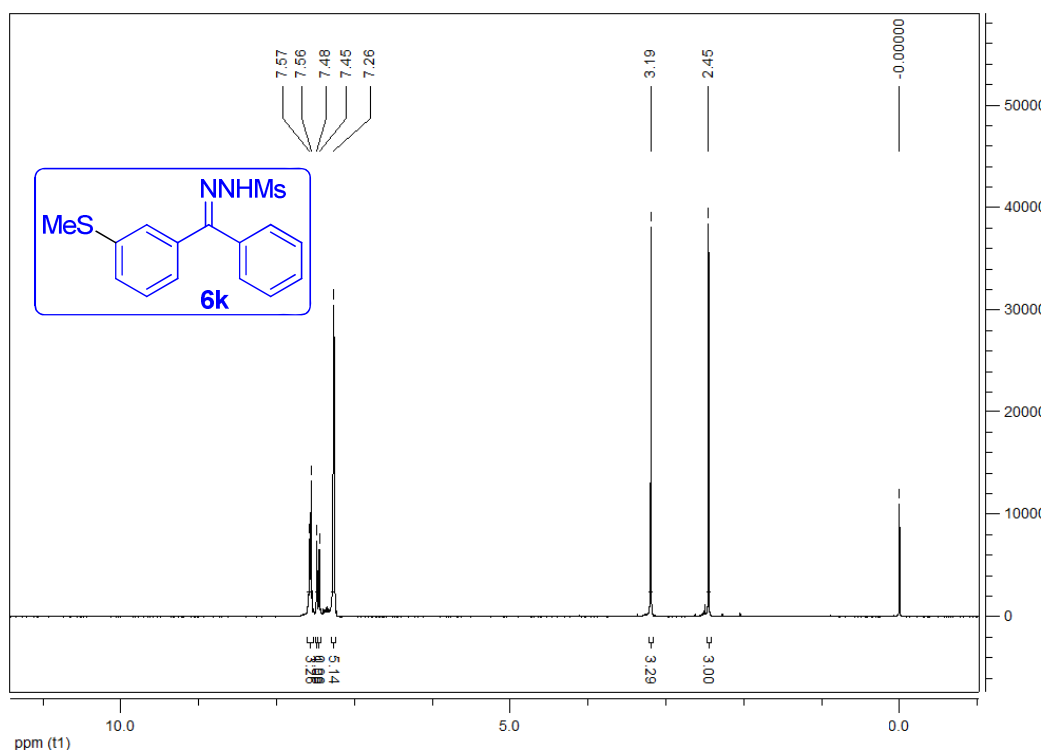


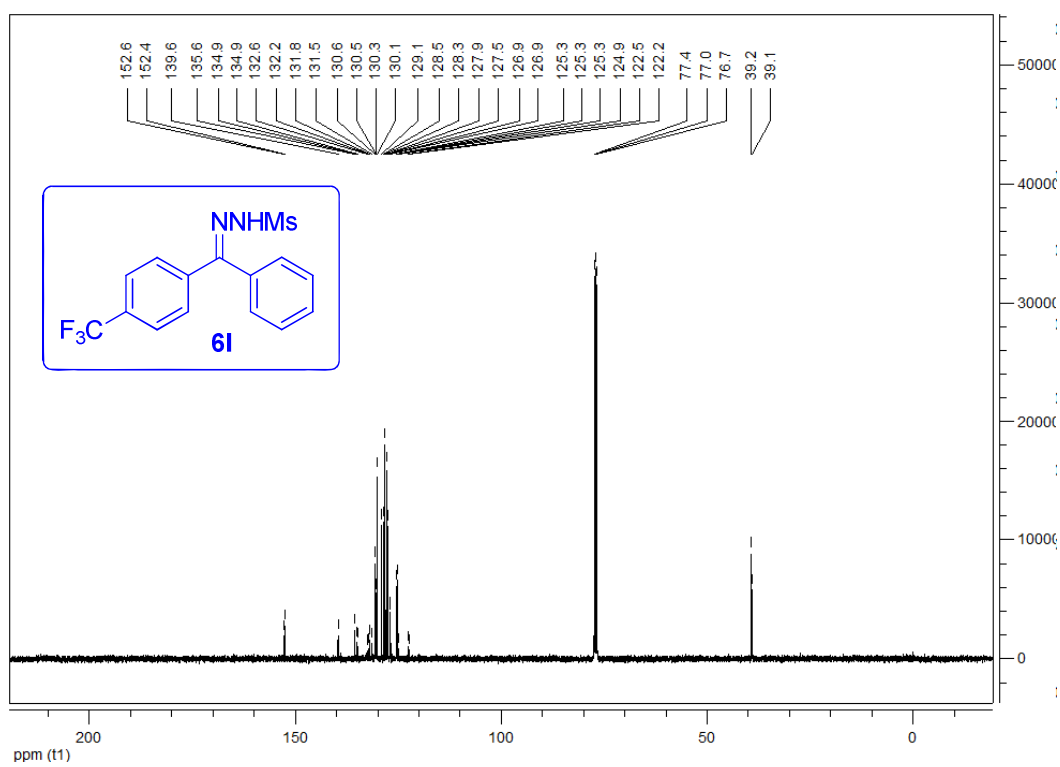
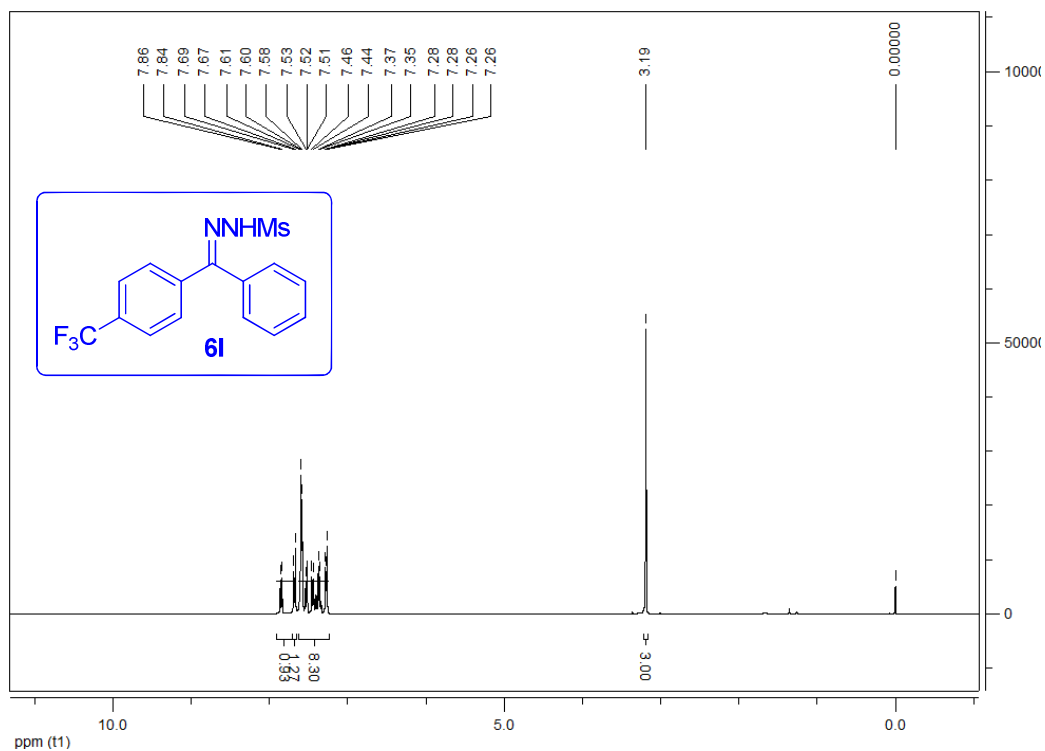


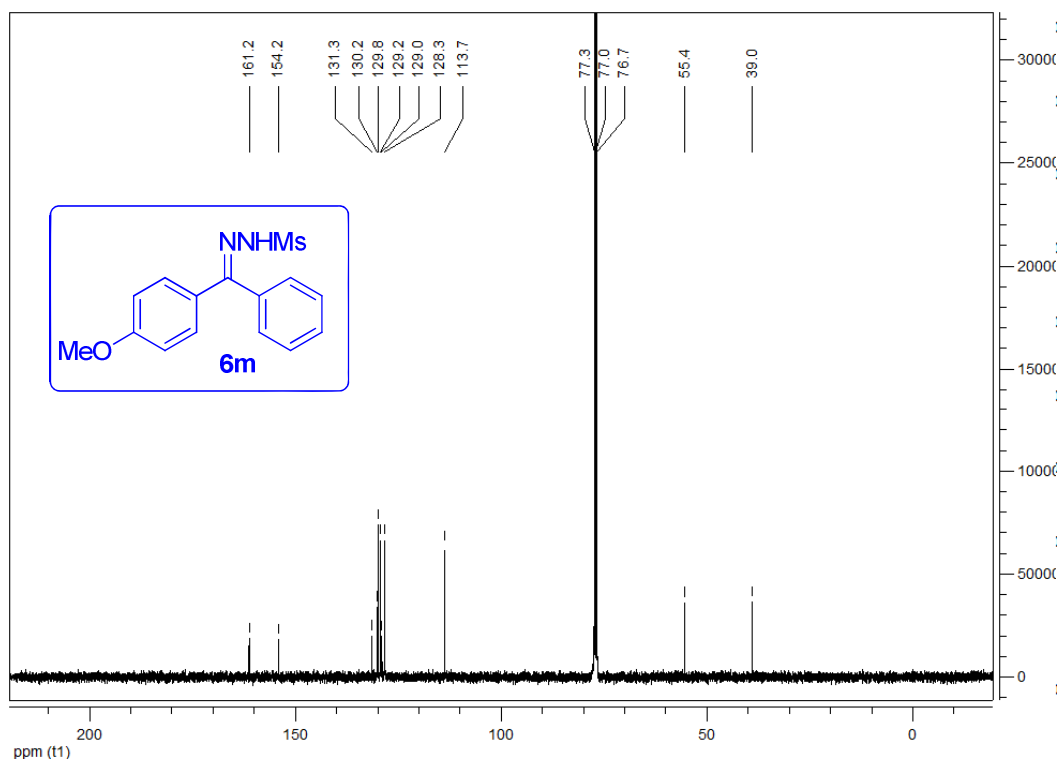
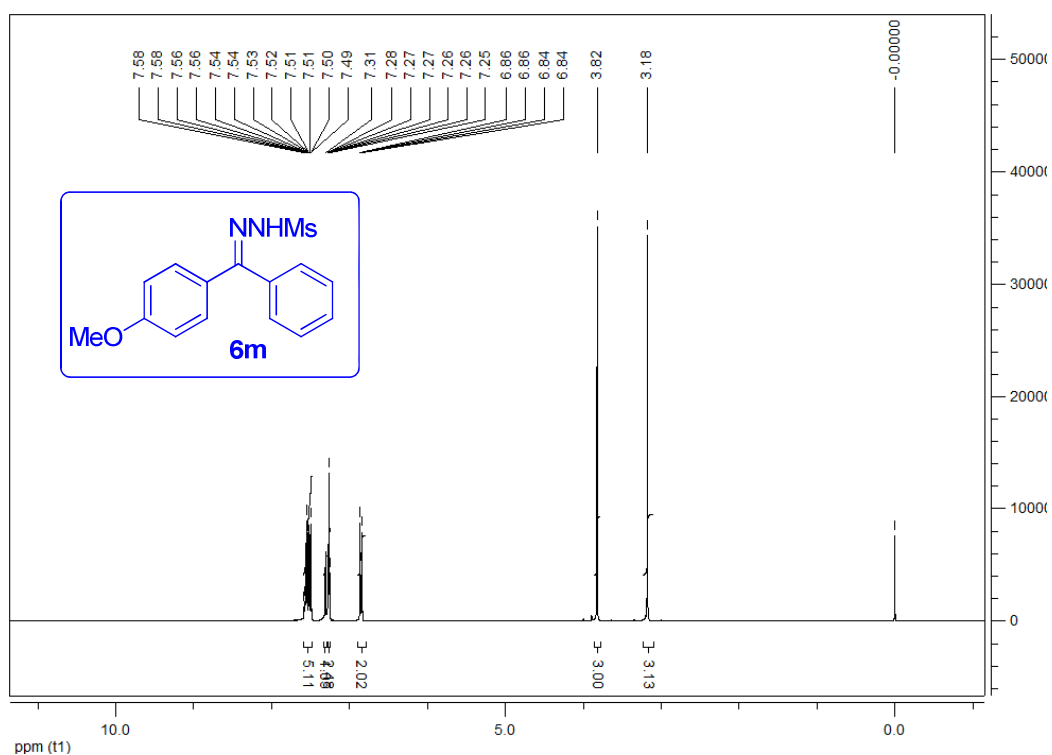


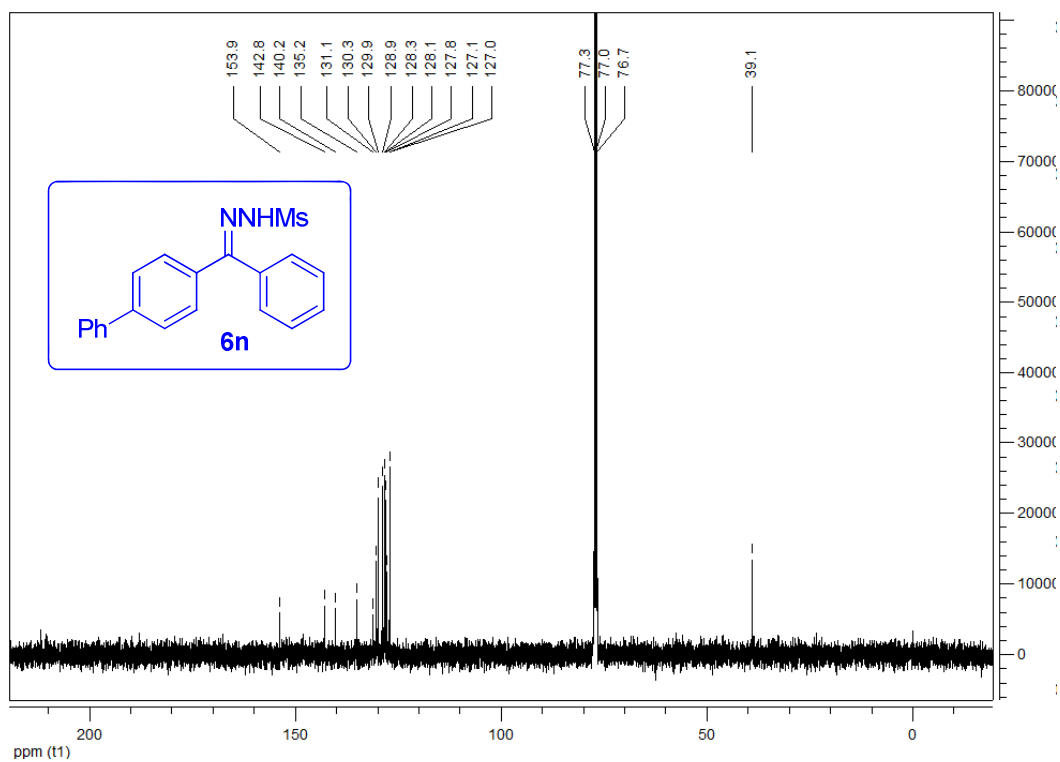
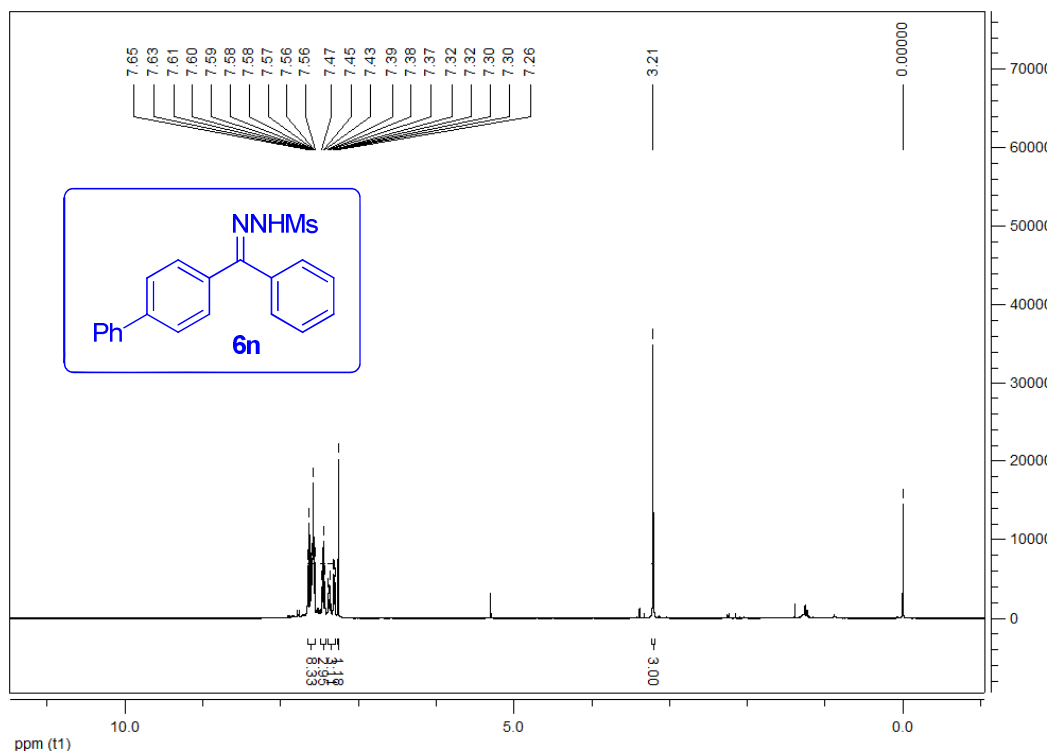


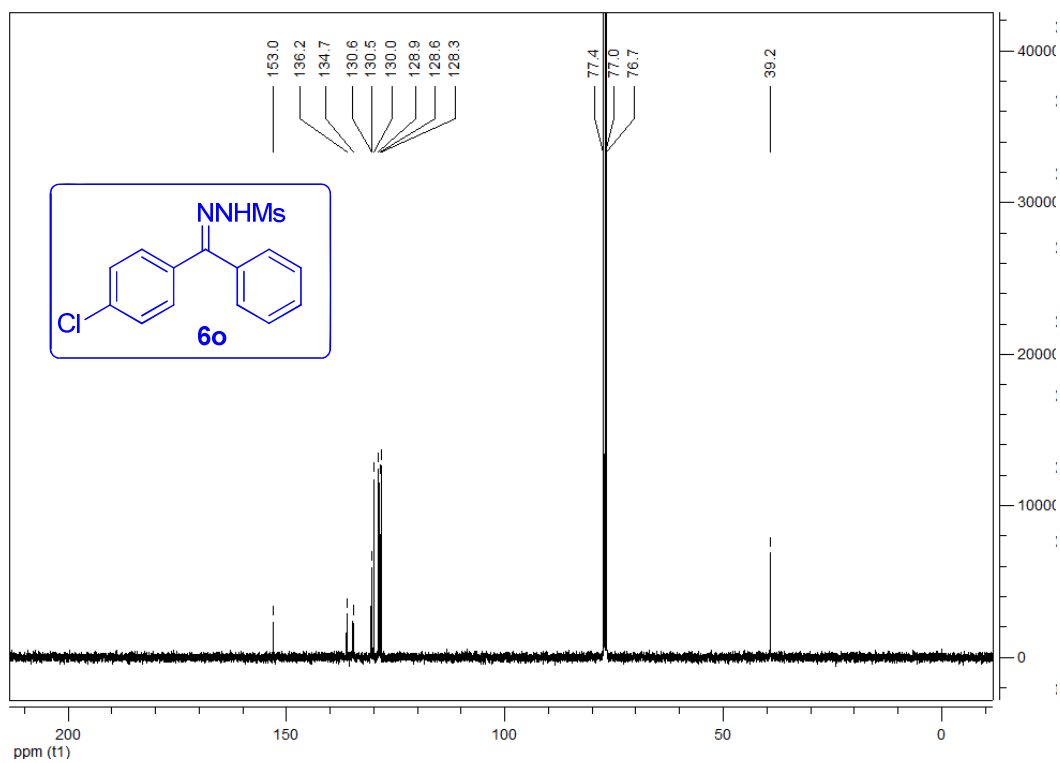
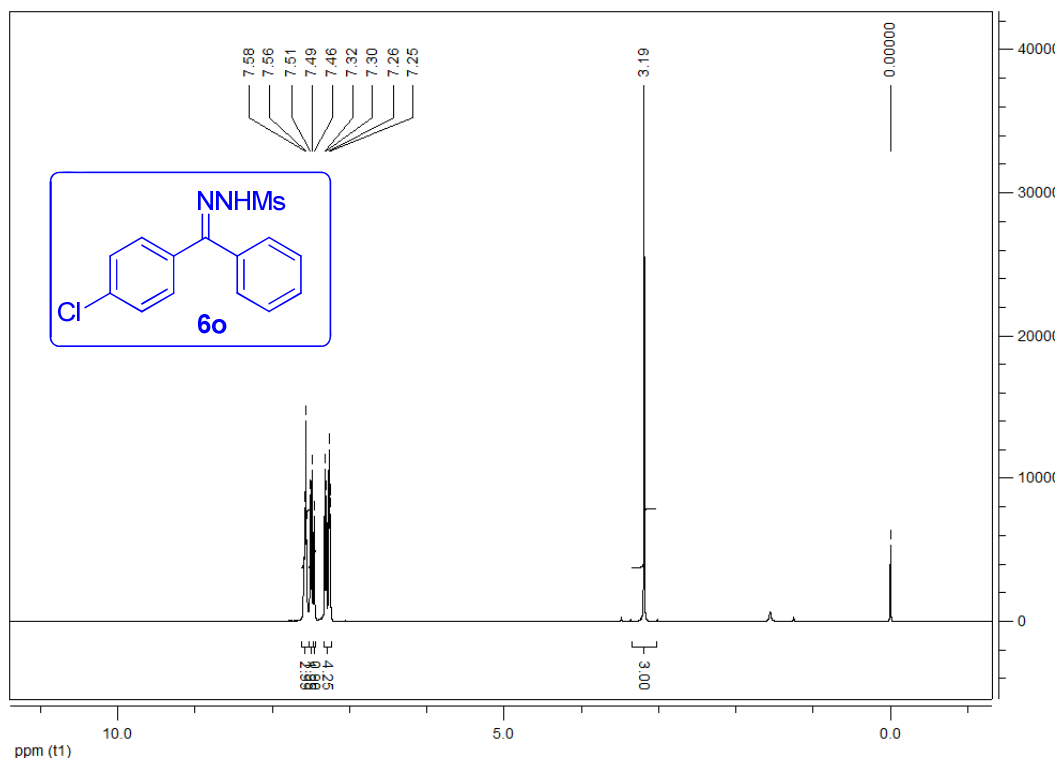


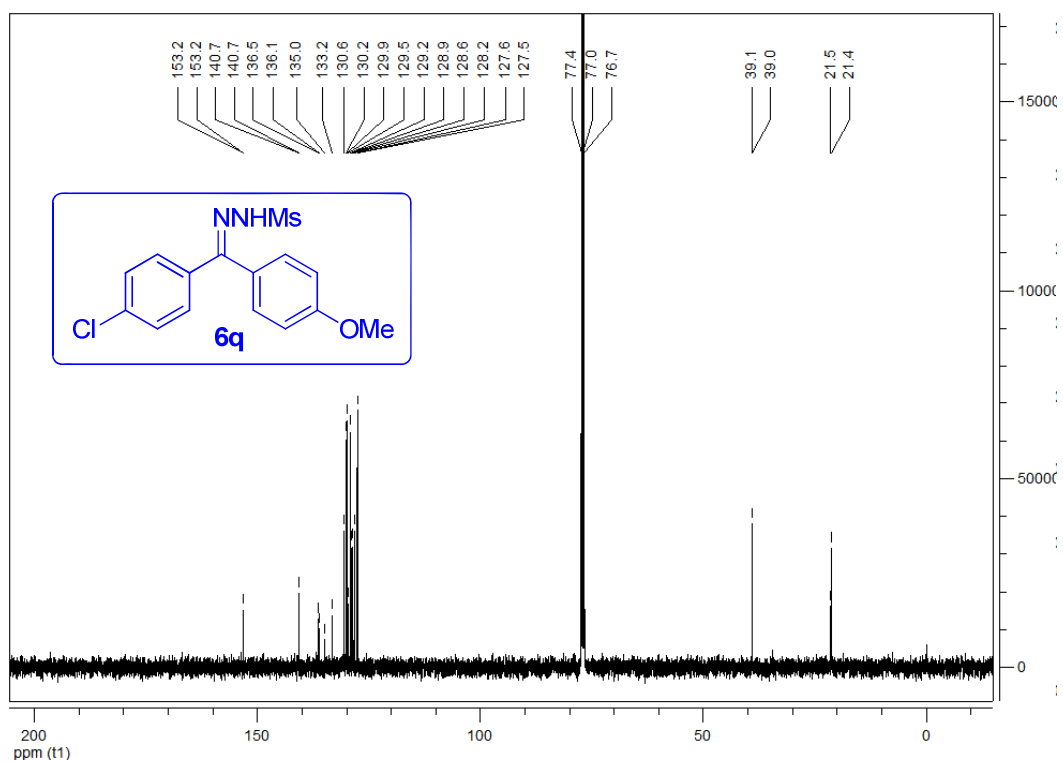
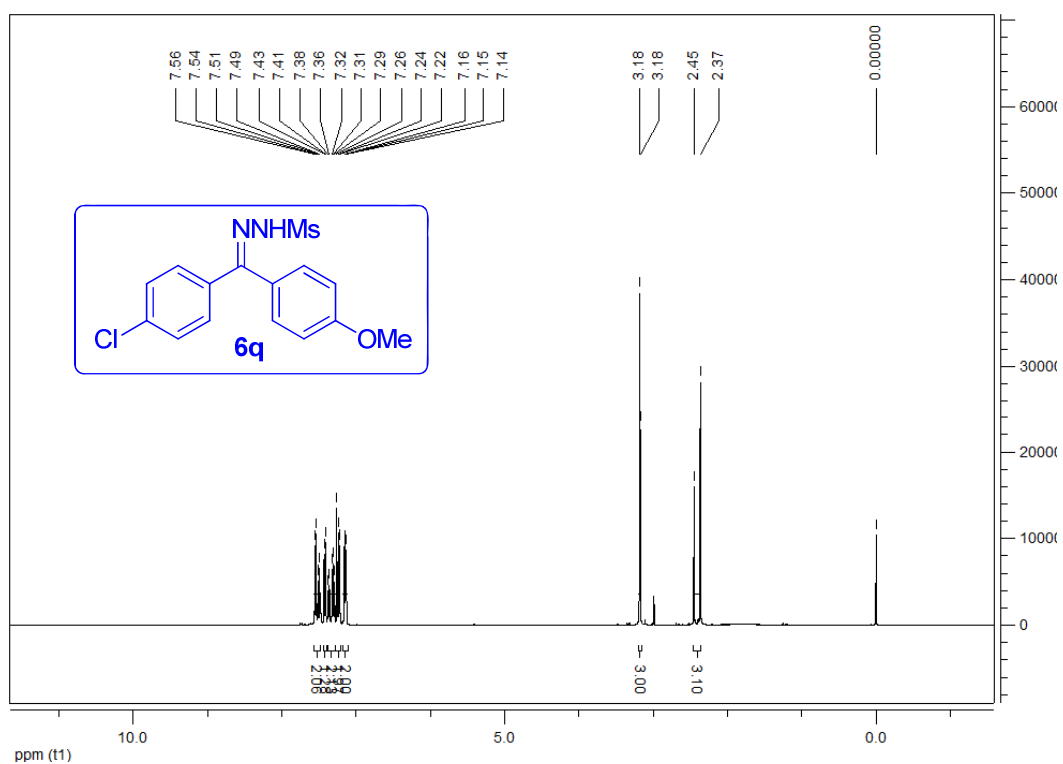


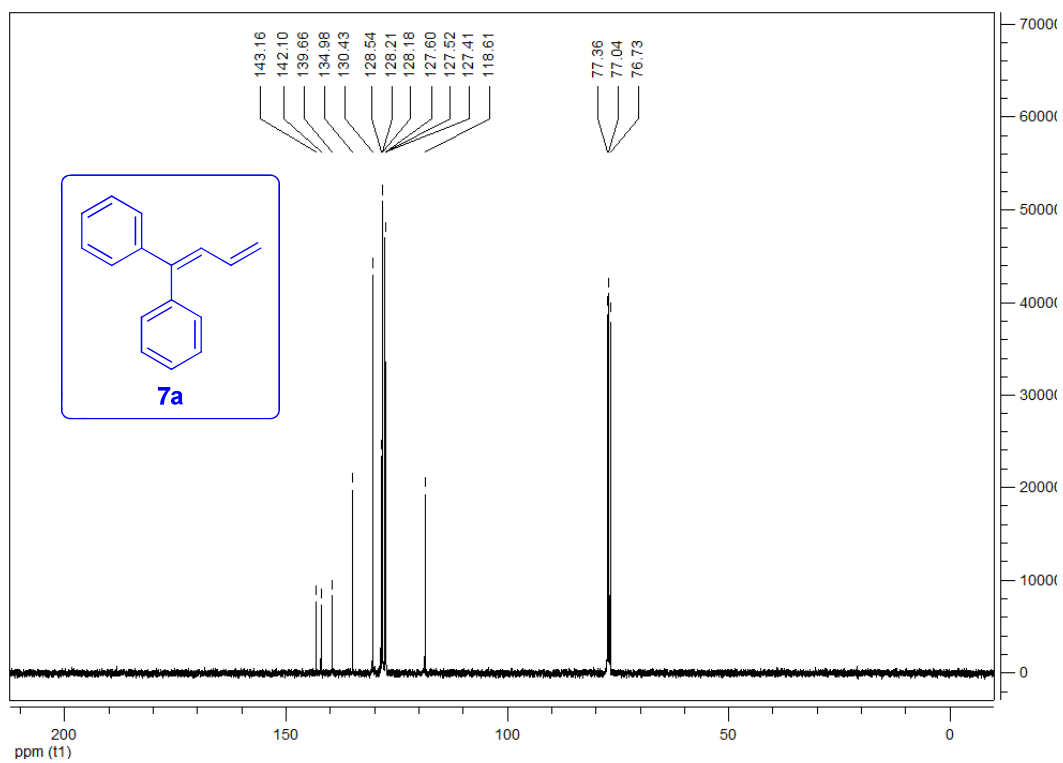
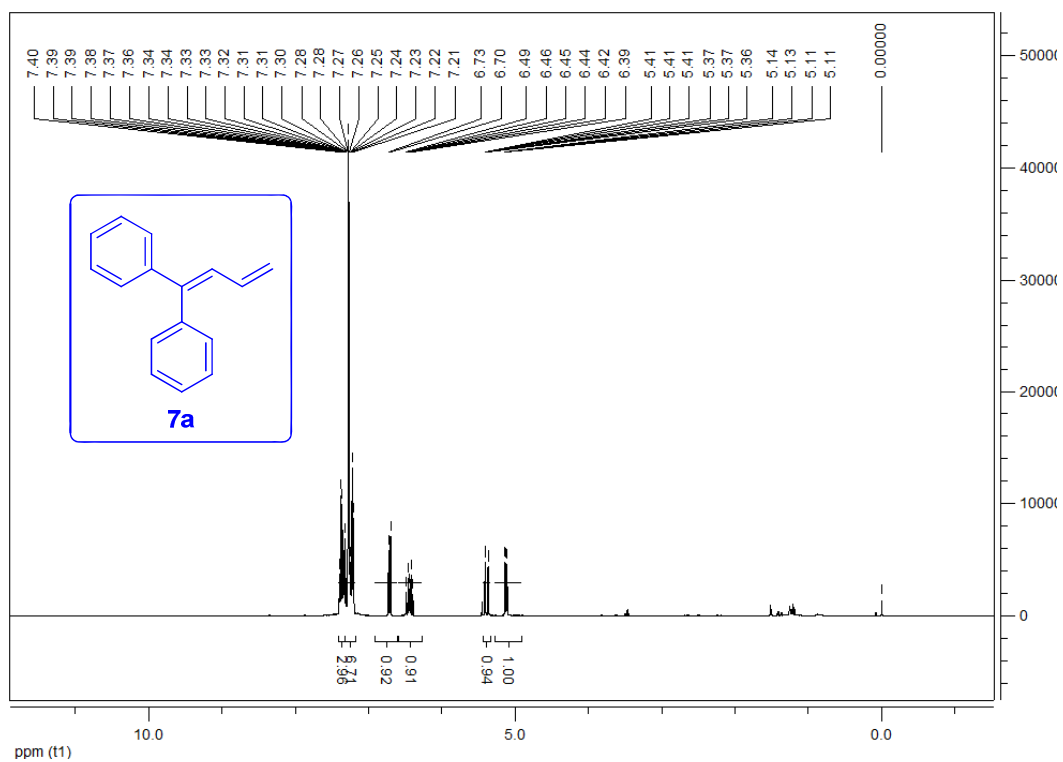


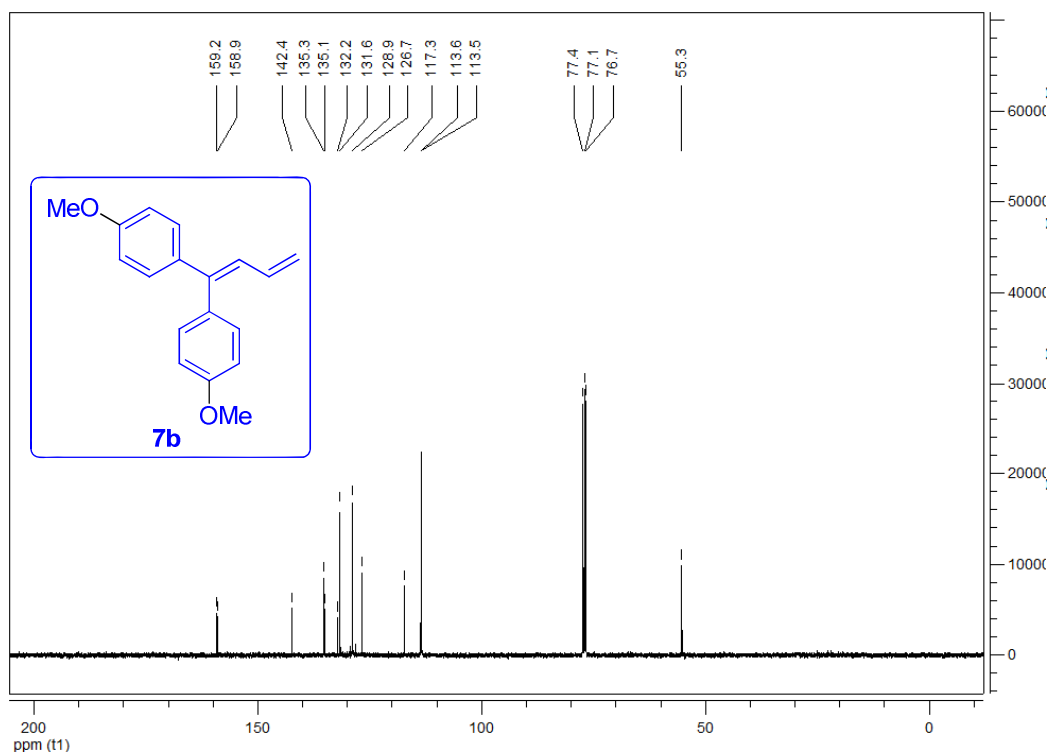
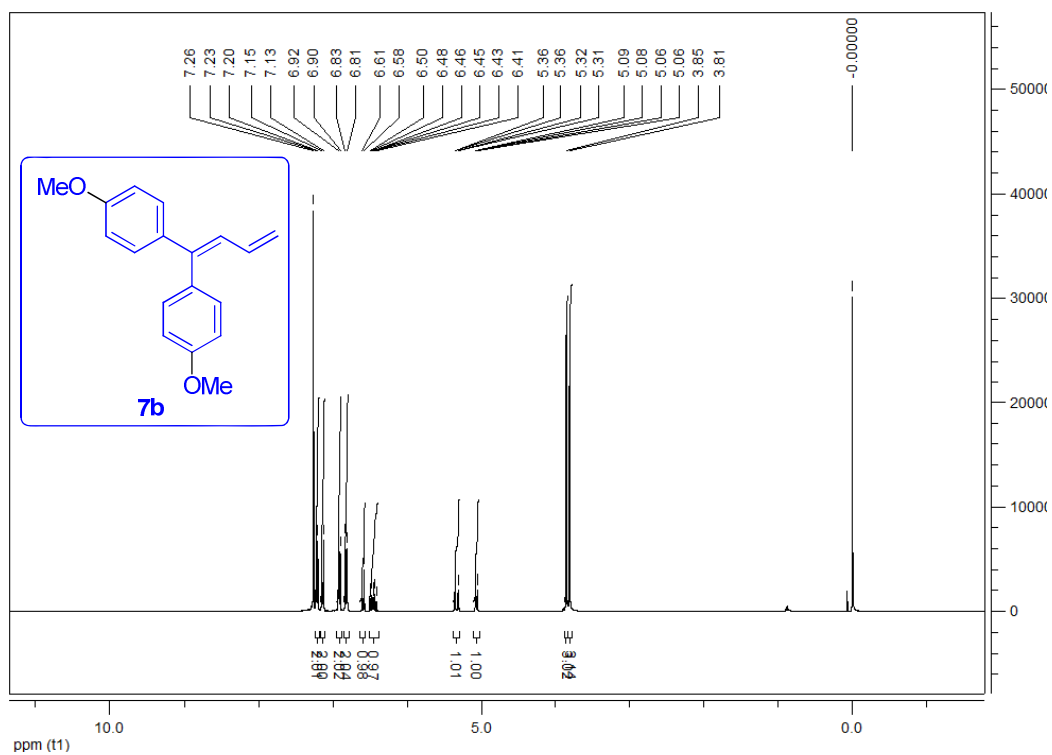


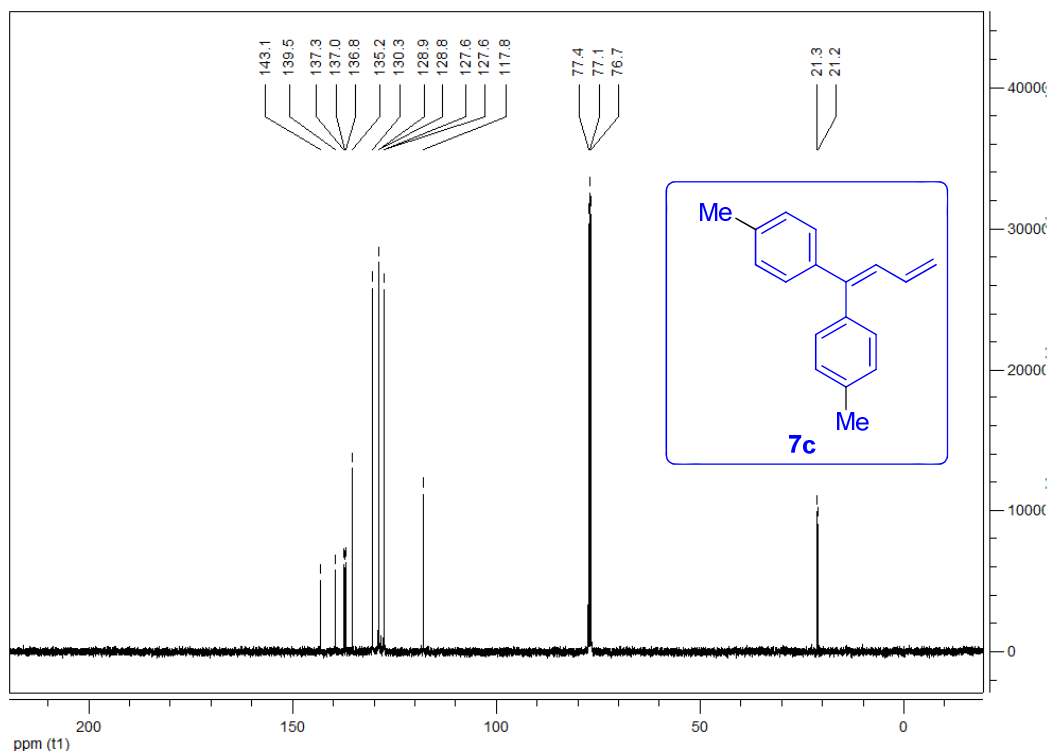
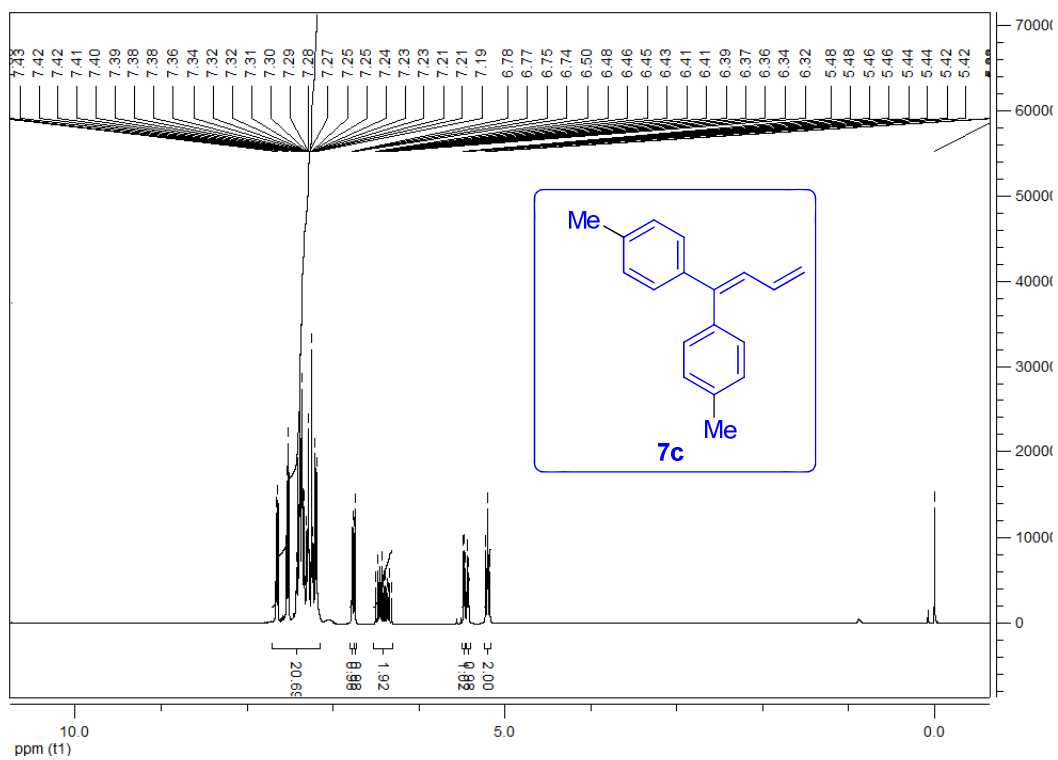


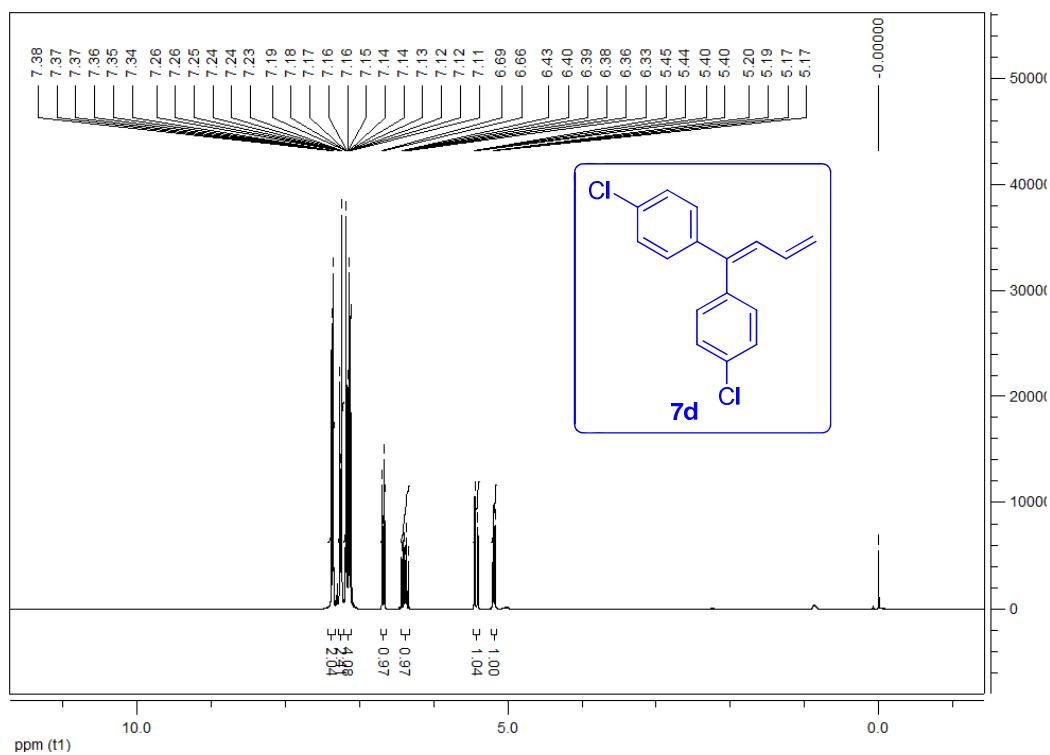












¹³C NMR Spectrum of 4,4'-(buta-1,3-diene-1,1-diyl)bis(chlorobenzene) (7d)

